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CONTENTS.

ORIGINAL COMMUNICATIONS:

Diverticulitis of the Sigmoid. By William J. Mayo, M. D., Rochester, Minnesota 427

Modern Medicine—Scientific Spendthrift. By Alfred Stengel, M. D., Philadelphia, Pa. 433

Concerning Renal Complications of Ureteral Stone and Their Prevention. By Leo Buerger, M. D., New York, N. Y. 439

President's Address. By Alfred L. Gray, M. D., Richmond, Va. 450

Humanistic Devotion. By Stephen Harnsberger, M. D., Warrenton, Va. 452

Some Observations on the Nature and Treatment of Cancer. By J. Shelton Horsley, M. D., Richmond, Va... 454

Public Health and the School. By Ennion G. Williams, M. D., Richmond, Va. 459

Medical Education in Virginia. By Stuart McGuire, M. D., Richmond, Va. 463

The Relation of Medicine to Law. By Judge F. B. Hutton, Abingdon, Va. 467

Atrophy of Lymphatic and Tonsillar Tissue by Radium and X-Ray. By C. Augustus Simpson, M. D., Washington, D. C. 473

Cutaneous Blastomycosis; Report of Case. By James W. Anderson, M. D., Norfolk, Va. 475

Treatment of Tubercular Peritonitis with the Quartz Lamp. By Samuel Newman, M. D., Vienna I. 477

Report of a Case of Uterine Bleeding Treated with Radium. By Joseph J. Mundell, M. D., F. A. C. S., Washington, D. C. 479

PUBLIC HEALTH 480

PROCEEDINGS OF SOCIETIES 480

MISCELLANEOUS 482

THE TRUTH ABOUT MEDICINE 483

BOOK ANNOUNCEMENTS 483

EDITORIAL 485

NEWS NOTES 487

OBITUARY RECORD 492

FOR MEDICAL SOCIETY AN NOUNCEMENTS SEE PAGE 8.

INDEX OF ADVERTISERS—Advertising Page 5.

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Original Communications

DIVERTICULITIS OF THE SIGMOID.*

By WILLIAM J. MAYO, M. D., Rochester, Minnesota.

Every medical practitioner of experience occasionally has met with a person, more often in middle or later life, and usually, but not always, obese, who complains of a painful, indefinite, left sided abdominal tumefaction, due to diverticulitis of the sigmoid. The symptoms, as a rule, are subacute and accompanied by a moderate increase in temperature, seldom above 102. Abdominal distention and gas eructations are early symptoms. Usually, on deep palpation along the course of the colonic sigmoid, an ovoid, somewhat tender mass can be made out. After a few days the pain, tenderness, and swelling subside, and in the next two or three weeks the patient slowly recovers. Often a history of previous attacks can be elicited. Unfortunately, all cases do not end so pleasantly. Instead of a material decline in the size of the tumor and the resulting symptoms, the increased temperature continues, the mass becomes larger and more and more painful, and, in the course of several weeks, attaches itself to the bladder, to another portion of the intestine, or to the abdominal wall, and a slow infectious process produces a large quantity of foul pus of a feculent odor, which is spontaneously evacuated, and the patient may recover completely.

It is further unfortunate that the abscess which has its origin in diverticulitis of the sigmoid may result in a persistent fistula communicating with another viscus, often the bladder. In chronic cases the distress in the bladder from the discharge of gas and feces may incapacitate the patient, the amount of disability depending largely on the location of the fistula.

When the infection involves some other portion of the intestinal tract, obstruction of the bowel, partial or complete, is not at all uncommon, and may lead to the necessity of operating at an unfortunate time for the relief of an acute intestinal obstruction due to localized peritonitis. If the peritonitis threatens to become general, the treatment should be that advised by Ochsner, many years ago, which we carry out as follows: The stomach is emptied; fluids (3 to 5 per cent glucose), are given by rectum by the Murphy drip or subcutaneously, 2000 to 3000 c.c. every twenty-four hours; unguentum hydrargyri (blue ointment), 1 dr., is rubbed into the skin of the abdomen; large thick hot fomentations are applied to the entire abdomen and changed frequently; food and cathartics are withheld, and sufficient opium is given to induce rest and quiet. As a rule, these patients can be tided over the acute state to the chronic stage.

The abscess cavity may, in the course of time, contract and, if the location of the fistulous communication is favorable for drainage, the patient may recover completely, but the prospects of complete healing of an intestinal fistula without sequelae are not good. The pressure of the gas and fluid in the intestinal loops may be sufficient to divert intestinal contents into the abscess cavity with extension of the ulceration, so that occasionally a number of intestinal loops become involved with multiple communications between the adherent loops, the old abscess cavity, and the sigmoid. Eventually these imperfectly draining fistulous cavities may establish communication with the bladder, or penetrate to the surface of the abdomen. I have operated occasionally in such a case and found as many as six intercommunicating intestinal fistulas with one or more openings into the bladder. During the slow, tedious process following the evacuation of the abscess and the formation of

*Read by invitation before the fifty-second annual session of the Medical Society of Virginia, in Lynchburg, October 19, 1921.

the fistula, the patient may not be confined to bed, but is always seriously incapacitated.

This brief discussion of the natural history and average course of diverticulitis of the sigmoid will serve to call your attention to a group of cases which were for a long time misunderstood, or at least little understood. Complete proof of the existence of acute diverticulitis was not established until 1907, when I presented a paper before the American Surgical Association, written in association with Drs. Louis B. Wilson and Herbert Z. Giffin. The clinical and pathologic findings in five cases in which resection of the affected sigmoid had been performed were reported. The pathologic study of these five cases cleared up the subject. The late Reginald Fitz, who was present at the reading of the paper, remarked that he had been present at the birth of a new disease, and that although he and others had often seen diverticula in the sigmoid and suppurative processes in other cases which were supposed to have such origin, never before had positive proof of it been presented. The first case cited in our original article is so typical that I present it herewith:

In 1896, a well-nourished man, aged fifty-one years, presented himself at the Clinic with an internal fecal fistula into the bladder. The history, in brief, was that some months previously he had been seized with pain and soreness in the left inguinal region and a tumefaction had followed. After a number of weeks of illness, a large amount of foul pus was evacuated by way of the bladder. The tumor disappeared, but from that time there had been more or less escape of gas and feces into the bladder. A diagnosis was made of probable appendiceal abscess with secondary internal fistula. On opening the abdomen the appendix was found to be normal, but in the sigmoid flexure of the colon was a sausage-shaped tumor of considerable size imbedded in a mass of adhesions in the pelvis, and a fistula between the sigmoid and the bladder. These organs were separated, the opening into each viscus sutured, and free drainage introduced. The suturing proved to be imperfect and a combined urinary and fecal fistula to the surface was the result. The opening into the bladder healed in a few weeks but, when the patient was last seen, two years after operation, the fistula occasionally discharged gas and hard particles of feces (Figs. 1 and 2).

I hasten to assure you that we have no desire to claim priority in reporting this condition, particularly since disputes concerning priority have been said to be evidence either

Fig. 1. (Case H1903). Diverticulitis. Sigmoid laid open longitudinally. A diverticulum containing a sloughing ulcer is seen at the lower right hand; another is sectioned near the label needle.

of a feeble ambition or a small mind. Graser, in 1900, was the first to describe the disease, and he had an excellent conception of its pathologic possibilities. Beer, in 1904, and Gordinier and Sampson, in 1906, published illuminating papers on the subject. These papers were rapidly followed by those of Telling, Plummer, and others. Brewer's valuable contribution to the acute phases of the condition was presented to the American Surgical Association at the meeting, to which I have referred, in May, 1907.

It should be noted that I am discussing only the acquired type of diverticula of the sigmoid, that is, the type in which the mucous membrane of the gut pouts through little defects in the submucous and muscular coats of the intestinal wall, the exposed mucous membrane being covered only by peritoneum. The distinction between acquired diverticula and true diverticula is, of course, quite clear. True diverticula are covered by all the intestinal coats; usually they are congenital and seldom cause symptoms. An interesting interpretation

of the etiology and pathogenesis of acquired diverticula is contained in a paper published by McGrath, in 1912. A certain practitioner,

Fig. 2. Diverticulitis. Enlarged view of sectioned diverticulum shown in Figure 1. Note muscularis in wall, occluded lumen, and inflamed submucosa.

who is also an automobile enthusiast, has referred to acquired diverticula in the colon as "blowouts of the inner tube." In the distal extremity of these little pouches will usually be found hardened balls or masses the size of a small pea, which are composed of saponified intestinal secretion and vegetable fibers derived from the food refuse. The neck of the sac is usually smaller than the average lumen, and, under influence of infection, the resulting edema causes the opening into the sigmoid to become completely closed, thus retaining inflammatory products in the diverticulum. The retained secretion in turn penetrates through the mucous membrane and the peritoneal covering into the abdominal cavity, usually at a point previously protected by adhesions, and a localized abscess may result. Cases have been described in which rupture has taken place into the free peritoneal cavity, causing a fatal acute general peritonitis, but I have never observed such a case.

In some cases of diverticulitis in which I have been compelled to operate in the acute stage, I have been able, after emptying the abscess, to remove the necrosed diverticulum and close the opening in the sigmoid by catgut suture, leaving in place a Penrose type of rubber drain. While a small fecal fistula almost

Fig. 3. (Case 16736). Peridiverticulitis. Inflammatory mass surrounding sigmoid dissected away, showing outer ends of numerous diverticula protruding through the muscularis. Several diverticula contain enteroliths.

Fig. 4. (Case 19395). Peridiverticulitis. Diverticulum and one point of defective musculature.

always forms, it heals readily. In subacute cases I have sometimes found that removing the offending diverticula is effective and safe, and the patients had no further trouble. (Figs. 3 and 4).

The similarity of acute diverticulitis and acute appendicitis, with the exception of the variable difference in size, is marked. As a rule, there is just sufficient time after the beginning of the acute process in the diverticulum to permit encapsulation, the epiploic tags of the sigmoid itself, in conjunction with the omentum, furnishing an effective temporary barrier as first aid against the spreading of the infectious process, herein differing markedly from acute gangrenous appendicitis. In the average case only one diverticulum is involved,

Fig. 5. (Case 44726). Symptomless diverticula of the sigmoid.

others being affected later by contiguity and from the peritoneal side in the progressing abscess rather than from the mucous surface.

To the coming of the X-ray and its marvelous portrayal of pathologic conditions to which we had previously been blind, we owe much of our knowledge of the frequency of acquired diverticula. It is not at all uncommon to find, in a colon properly filled with barium, sections of the gut in which from a few to many inches contain scores of diverticula. (Fig. 5). Diverticula are not by any means confined to the sigmoid, although the sigmoid is the most frequent location of the process. C. H. Mayo has pointed out that perirectal fistulas that sometimes extend for a number of inches up one or the other side, or posterior to the rectum, usually have their origin in an acute infection of a rectal diverticulum. Diverticula may be found in any or all parts of the large intestine and may even be confined to a certain portion, such as the transverse colon, without demonstrable lesions in the sigmoid. We have resected parts of the colon for diverticulitis in seventy-eight cases; sixty-four of these were in the sigmoid.

The course of diverticulitis of the sigmoid, however, may not be acute, but rather subacute, or, quite commonly, an acute attack may be followed by chronic induration of some portion of the sigmoid, giving rise to a left hypogastric tumor, which may remain for weeks or months, and lead to a certain amount of chronic colonic obstruction which may eventuate at any time in an acute obstruction. In some cases acute obstruction is the first symptom of chronic diverticulitis which has progressed to stenosis without the knowledge of the patient.

Another source of worry is the determination of whether a chronic tumor in the abdomen is chronic diverticulitis, carcinoma, or, as is often the case, carcinoma developing on diverticulitis. Wilson, in 1911, discussed diverticula of the lower bowel and called attention to their relationship to carcinoma. In four of the fifteen cases which he reported at this time from the Clinic carcinoma had developed. It is reasonable to assume that infection and irritation by hardened fecal masses in diverticula are the cause of the chronic irritation and precancerous change. The only known fact of importance in the etiology of carcinoma is its relation to chronic irritation. The term precancerous is used to denote certain cell changes taking place in the area of chronic irritation which, if found in connection with invasion of the tissues, would be typical of carcinoma (Fig. 6).

Giffin, in 1912, reported that for every sigmoid resected in the Clinic for diverticulitis, seven had been resected for carcinoma. Our statistics show that in 490 resections of the colon for carcinoma, 248 were for growths of the sigmoid. It has often been pointed out

that carcinoma of the colon, especially of the sigmoid, may progress very slowly. Cases have been reported in which a colostomy was made for the relief of obstruction due to sup-

Fig. 6. (Case 28835). Longitudinal section through sigmoidal wall, showing carcinoma containing remains of diverticulum.

posed carcinoma; the patients lived for a number of years and then died of carcinoma of the sigmoid, a fact which apparently proved that the condition had been carcinoma from the beginning and that the natural course of the disease had continued for eight or nine years. This inference is unwarranted. We have operated in several cases of this type and, on resection of the growth, found carcinoma developing on old diverticulitis. In tracing the early history, it could be seen that the diverticulitis had been the cause of the obstruction for which the colostomy had been made, and that the carcinoma had developed at a much later date as the result of chronic irritation. In one rather remarkable case, a supposed carcinoma of the sigmoid, associated with a carcinoma of the transverse colon, was found on exploration. I removed the left half of the transverse colon, the splenic flexure, the descending colon, and part of the sigmoid, uniting the remainder of the transverse colon to the lower sigmoid. When the specimen of the sigmoid was unraveled, it proved to be involved by diverticulitis for six inches. Carcinoma had developed on one diverticulum which had become adherent to the transverse colon, and had spread into the peritoneal, muscular, and submucous coats of the transverse colon without penetrating the mucosa. There was no carcinoma in the sigmoid, the malignant process being confined strictly to the one diverticulum and the transverse colon. It is usually possible to differentiate diverticulitis and carcinoma by the roentgen ray, since in carcinoma a filling defect will be found in addition to the less reliable findings of blood, pus, and mucus in the stool. With the sigmoidoscope we have been able to distinguish carcinoma associated with diverticulitis of the lower sigmoid and rectosigmoid, but we have not been able to demonstrate diverticula in the colon in this manner.

Surgical Treatment.

The treatment of diverticulitis of the sigmoid depends on many factors. In acute cases, especially if the patient is old, obese, and a poor risk for operative procedures, the treatment should be tentative. If pus collects and becomes well encapsulated, it should be evacuated instead of waiting for spontaneous evacuation, with the possibility of the formation of a fistula and its attendant evils. If more radical treatment becomes necessary, it can be postponed to a later and more favorable time. If acute obstruction results, a colostomy can be made as close to the obstructed point as is convenient, so that later the stenosed portion of the gut and the colostomy may be excised through the same incision simultaneously, or, as advised by Stiles, a cecostomy can be made for temporary relief.

If the patient comes for the relief of internal fistula, especially one communicating with the bladder or another part of the intestine, a serious problem confronts the surgeon, the seriousness being proportionate to the number of internal fistulas and their location. I know of no more trying operation than some of this character which I have performed. In several instances, I have dissected out multiple interintestinal fistulas communicating with the bladder and carefully sutured the bladder and each intestinal opening and, after some days, leakage to the surface has followed the line of drainage, with a temporary discharge of feces and urine. However, these wounds have eventually healed.

A very excellent technical maneuver in such cases was first suggested, I believe, by C. H. Mayo. This consists of completely separating the colon from adherent intestines and bladder, and, after suturing the fistulous openings, bringing the omentum into the operative field. An opening is made in the omentum through which the sutured portion of the sigmoid is brought to the surface of the abdomen, and attached by a few sutures, thus throwing the omentum between the defects in the colon and bladder and adherent intestines.

It is usually wise to resect the chronic stenotic tumors of the sigmoid which may result from diverticulitis with end-to-end anastomosis in one or two stages. Here again is demonstrated the value of drawing the anastomosed area through an opening in the omentum so that it is completely blanketed, except at the point of danger of suture leakage, and of attaching the dangerous area into the incision with a few catgut sutures. We usually carry a little vaselin down to the suture line, or insert a few strips of rubber to maintain communication with the surface. It is surprising how often there is leakage in some point in the suture line of the anastomosis, but, managed in this manner, it is rendered harmless instead of causing, perhaps a fatal, peritonitis.

In some cases it is best to perform the two-stage operation of Mikulicz and Braun: The involved part of the sigmoid is brought outside the body, and sutured into the incision in the abdominal wall and allowed to heal in. The diseased portion is cut away flush with the skin, leaving the two ends of the sigmoid projecting like a double-barrelled shot-gun. If there is no acute condition, such as obstruction, the projecting sigmoid is not cut away for a few days to permit firm adhesion between the attached sigmoid and the abdominal wall. After from six to fourteen days, a pair of forceps is applied, one blade in each intestinal opening, and the intervening tissue clamped tightly and left until the forceps have necrosed through. Several weeks later the ends of the colon are sutured without opening at the free peritoneal cavity as a colostomy would be closed. If the diverticulous tumor is low in the pelvis, the Balfour method of resection and anastomosis may be employed. I quote from Balfour's original paper in describing this effective and safe procedure.

"The patient is placed in a high Trendelenburg position and a long middle line incision is made between the umbilicus and the pubes. The intestines are carefully packed off above, leaving only the lower sigmoid exposed in the pelvis. Liberation of the affected portion of the bowel is effected by lateral incisions through the peritoneum, particularly through the outer leaf of the sigmoid, and a semilunar incision is made along the base of the bladder, connecting the two lateral incisions. If there is a suspicion of malignancy, careful dissection is made of all the fat and glands as high as the abdominal aorta, the hollow of the sacrum being swept clean. The inferior mesenteric and middle sacral arteries are ligated at proper points. Two pairs of forceps are clamped on the bowel at a suitable distance below the tumor and two on the proximal side; the necessary amount of sigmoid with the tumor is excised and the cut ends sterilized. A one-half to three-quarter-inch rubber tube is passed into the lower segment of bowel until the end protrudes through the anus; the upper end with lateral eye is inserted into the proximal end of the sigmoid to a distance of about four to twelve inches, usually as far as the descending colon. It is secured to the cut end of the proximal sigmoid by a transverse catgut stitch. Traction is made by an assistant on the end of the tube projecting from the rectum, until the cut ends of the sigmoid and rectum meet, and the anastomosis is made by interrupted through and through chromic catgut sutures with careful coaption of the mucous membranes. Traction is again made on the tube sufficient to accomplish one-half inch intussusception; this is aided by a few forceps on the distal fragment to steady it, and a second row of seromuscular sutures is inserted. Sometimes the parts are so deeply situated that the second row of sutures cannot be well placed; nevertheless, the ultimate results have been good. The defect in the peritoneum behind is remedied by sliding the peritoneum and suturing, and finally the omentum is drawn down over the anastomosis and, if necessary, secured by a catgut suture. The abdominal wound is closed in the usual manner. If drainage is necessary it is provided by two rubber wicks carried down, one on each side of the anastomosis, into the hollow of the sacrum, and brought out in the lower part of the abdominal incision. The rubber tube in the rectum remains in position for from six to ten days, until the catgut hold-

ing suture is absorbed. The abdominal drains are loosened on the fourth to the sixth day, but usually not removed before the eighth to the tenth day, because a late temporary fistula will sometimes occur."

Nearly one-third of the cancers of the sigmoid which we have removed have had their origin in diverticulitis. In some of these cases, until the specimen has been examined microscopically, it cannot be determined whether the condition is chronic stenosing diverticulitis, carcinoma, or a combination of both. Resection, therefore, in the chronic tumor-forming type of diverticulitis must often be performed as would be done for carcinoma of the sigmoid. The death rate following resection for diverticulitis of the sigmoid has been approximately ten per cent., about the same as for cancer, and the radical operation is, therefore, not to be lightly undertaken.

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MODERN MEDICINE—SCIENTIFIC SPENDTHRIFT.*

By ALFRED STENGEL, M. D., Philadelphia, Pa.

At the end of each fiscal year, prudent business men are in the habit of taking stock of their possessions, not so much from any desire of gratification to be derived from the discovery of accomplished results as from the wish to know their true condition and to determine how they may wisely conduct their future operations. In the same spirit and for a like purpose it is well that estimates should be made from time to time in the case of the sciences and the professions. Speaking as I do for medicine in its narrower sense (as contrasted mainly with surgery), I confess there is some little tincture of pride in being able, before such a mixed audience of laymen and physicians, to bring forward some of the achievements in that branch of our profession which I represent, because it is everywhere apparent that the silent, undramatic advancements of medicine are less appreciated than those of us who are deeply concerned may properly desire. Whatever of satisfaction I derive from a retrospective survey of medical progress is, however, a mere by-product while my real purpose is to establish the theme that modern medicine has grown exceeding rich and has, unfortunately, in some ways fallen into the habit of a spendthrift.

Let us look backward then, that we may have no uncertainty in the matter, no farther backward than the date some thirty odd years ago, when your speaker was launched into his profession on a day that seemed to him the very end of long and arduous study but which his maturer judgment now recognizes as, indeed, his Commencement Day. Fortunately, the intervening years have not dimmed the lustre of the stars that graced our medical

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firmament nor dulled the memory of their achievements. Those were the days of activity of Fitz and Edward Janeway, of Da Costa, and Weir Mitchell, of Pepper and Osler, of Alfred Loomis, and Wm. H. Draper, and a host of others, the very mention of whose names conveys to the mind of every medical man an instantaneous photograph of the best of medicine of that time. Who among us that remembers them will fail of the impression that these were great clinicians—men who knew disease because they had studied it faithfully at the bedside and, without many of the aids that modern science has given us, had so trained their powers of observation and so diligently cultivated their domain that the natural history of disease in its obvious manifestations was to them more familiar than it is, alas, to most of us. I remember that Babes, a French bacteriologist, in speaking of the great Dutch naturalist, Leeuwanhoeck, and his simple microscope, with which he was the first to discover micro-organisms, says: "I know not which to admire most, the simplicity of the instrument or the magnitude of the discoveries." And so we may say of the clinicians of a generation ago that their attainment of knowledge was out of all proportion to the means at their disposal. In these days of exactness and exactitude there is little tolerance of speculation and theory; the spirit of the times demands demonstration, but are we not crushing something that goes to make the soul of genius? Lord Kelvin has told us that every great scientific discovery was in the first instance a product of imagination. A Darwin or a Roger Bacon stripped of imagination would be as sterile as a Professor Teufelsdreek, and, in our zeal to eradicate forever an ancient heritage of unsound speculation in favor of exact science, have we not a little too much discouraged trained imagination? I know I lay myself open to the charge of being that modern incarnation of anathema, a reactionary and, therefore, hasten to confess with or without shame, as may best appear to any one of my hearers, that I glory in being a conservative and in believing that a study of the achievements of the past and of the lessons of history may serve a useful purpose in medicine as in all other progressive movements.

"Sappho survives because we sing her songs,
And Aeschylus because we read his plays,"

And those of us who would form a just estimate of conditions of this day cannot neglect the wisdom of the masters who have gone before. The era of great clinicians has passed but, unless I misread history, a revival is due. Nature moves in periods. The testimony of the rocks bears witness of successive eras sharply distinguished and with frequent returns of strata similar to some that had gone before. So, in the realm of human thought, periods of accumulating knowledge have often been followed by stationary periods of constructive generalization. The tree glories in its leafy abundance during the Summer and puts it aside in the Winter, while the more essential woody accumulation is hardened into the solid trunk.

When one surveys the separate items of knowledge that have been amassed in our modern medicine during the last three decades and studies the general tendencies of advancement, one may feel that the movement in the direction of more diversified scientific facts and methods must of necessity go on without halt. Though it is clear that rapid increase in knowledge is usually the result of new methods, improved implements or technic, and other departures, and though it is evident that the product of such new means and methods will some day reach a limit—he would, indeed, be a daring man who would assert that any arrest in the splendid achievements of medical science lies immediately before us.

The impetus has been given, diverse methods of investigation deriving substantial aid from cognate sciences—chemical, physical and electric—are opening new veins of knowledge at every turn and we shall not soon, I hope, reach any halt in progress and must expect ever-increasing complexity and comprehensiveness in our medical science. Some day, perhaps, the possibilities of our present methods will be exhausted, but that is far in the future.

It is apparent, however, that in the field of medical practice some readjustment is even now necessary to make more readily available the new facts of science by methods that will not exhaust the patient and the agencies of relief. What I have in mind will become more clear after a brief review of the medical advances that have contributed to what we call modern medicine.

If we undertake a survey of the substantial medical achievements of the last three de-

cades we shall, without hesitation, select the story of infectious diseases for our first consideration. Bacteriology and its derivative, or the modern knowledge of infectious diseases, date from the early 80's of the last century. Founded on the epoch-making investigations of Pasteur, the phenomenally rapid accumulation of detailed information is attributable to the establishment of novel methods of investigations—those of Pasteur and later those of Koch—and their application by hosts of followers to different conditions. The accumulation of knowledge seemed so bewilderingly rapid and varied as to excite amused incredulity on the part of those who could not understand how micro-organisms or germs could be so suddenly recognized in all kinds of diseases. To them it appeared the latest fad and one likely to die out soon. I mention this now simply to emphasize a point already alluded to, that rapid and often very extended increases in knowledge are mainly due to the discovery of new methods of investigation. Men could speculate regarding the germ origin of disease or could even study germs themselves under their microscopes, but, until the new method of isolation and cultivation was found, no definite progress could be made. It would be useless to catalogue all the infectious diseases in regard to which we have acquired new knowledge; the index of the first available medical text-book will serve as well. You may include them all. But there are certain diseases whose study has given practical results of such enormous importance that the world must stop to note. Take malaria as an example. How well I remember the old time discussions of paludal miasms and dank vapors from swamp lands and then how amazed we were and, perhaps, how incredulous, when Laveran showed us the malarial germ. It was not long before Findlay's surmise of mosquito transmission was proved by Ross. It is interesting as an example of the keenness of older masters to note that Benjamin Rush, in his discussion of bilious remittent fevers (malarial?), says it was notable that the cases were most abundant in certain sections near the river "where the moschettoes did most abound." How dry as dust is the mere statement that the germ of malaria is known and that a certain type of mosquito serves as its carrier, but what a world romantic interest lies between the French army surgeon's studies in Algeria, the investigation of the Italians on the Campagna, of Ross in the heart of Africa, and the final triumph of Gorgas at Panama. In a material sense, the same period extends from the disastrous Isthmian defeat of the French under DeLesseps to the victory of Goethals made possible by Gorgas.

The history of yellow fever is equally thrilling and the eradication of this disease in large sections of tropical and subtropical America is one of the great achievements of modern medicine. What the future story of mankind may be as a result of such elimination of devastating scourges that have sapped the life of whole nations, it is too early to see, but we may, with Mr. Jones, go back to the history of ancient Greece for collateral evidence. In an illuminating study he has made clear that the downfall of that ancient and brilliant civilization was due less to the conquering hosts of Persia or internal warfare than to the invasion and dissemination of malaria.

Within the memory of most physicians and laymen in this audience we have reached the practical possibility of eradication of another great scourge—typhoid fever. The discovery of the germ, followed by more complete knowledge of the manner of its dessemination, the significance of "human carriers" and, finally, the method of protective inoculation, are the milestones in the course of events while in its broader recognition among all men the story is told by a comparison of the typhoid fever of Chickamauga in 1898 and the absence of typhoid in the armies of the world in 1918, and with equal force by a comparison of the mortality statistics of all our great municipalities of today and those of thirty years ago.

And yet another disease of world wide prevalence must arrest our attention, for its earlier recognition, its more accurate and positive identification, the discovery of means to control, its dissemination and its modern treatment, have made possible the steady undoubted decline in the death rate of the most widespread of all human scourges—tuberculosis. From the discovery of the germ by a country doctor, Robert Koch, and the demonstration of its communicability by a French physician, Villemin, to the modern campaign for eradication of the disease involving expenditures of many millions and the interest of the whole world, there stretches a hard beaten path deviously winding through dense forests, broad

plains, and deep valleys and up occasional high peaks from which the highest peak of all is seen beyond, though not yet attained. Who shall say that the ultimate peak—the eradication of this great plague—will not be soon accomplished?

These are but four of the great achievements of modern medicine and I need only allude to others in a word or two. It was but yesterday that our American Commission made such short work of the frightful epidemic of typhus in Serbia, by using modern methods, and we know how more than once, in recent years, both typhus and the pestilential plague have tried by stealth to invade this country only to be met and defeated at our seaport entrances.

Protective inoculation has accomplished much, if not quite so conspicuous results as in the case of typhoid fever, in cholera, in plague and in various less important infections and has even shown somewhat hopeful indications of success in pneumonia—that most extended and most dreaded of acute infections.

Antitoxic sera have achieved so much in the prevention and treatment of diphtheria and tetanus that these diseases have lost most of their terror for the pediatrist and the military surgeon, and who of us has failed to appreciate the striking results of serum treatment in epidemic meningitis. But lest I weary you, I shall leave the rest of the story of bacterial diseases to your own reflections. Suffice that I add, the physician of today has before his mind an array of facts about infection and immunity, about general infection and local infection, about prophylaxis, anaphylaxis and cure, about serum and vaccines, and many other details, that are enough to crowd the most capacious cranial cavity.

But the story is only half begun. While those engaged in bacteriological investigations and in epidemiology have been reaching the wonderful results so briefly sketched, internists occupied with other methods have opened up great mines of information in other directions.

Those inclined toward chemical methods have given us entirely new conceptions of certain organic and nutritional diseases, notably Bright's disease, diabetes and gout, and have made distinct headway toward the solution of the riddle of their origin and cure, though at present a modest estimate perhaps constrains me to admit there are lacking gaps that yawn quite deep and dark. In the daily study of these diseases, chemical methods are as necessary as a physical examination is essential in diseases of the heart and lungs. It would be out of place to detail the many and varied methods of chemical study of the blood and the excreta, of the inspired and expired air and of the very tissues themselves that have served to establish for us what we now know as the science of nutrition, but what scientist would question the debt of gratitude owed to the nutritional chemist by Mr. Hoover and all others who have sought to preserve a spark of life in the starved unfortunates of Europe?

Those who have been interested in physical or mechanical means of study have given us new knowledge regarding the heart and circulation, diseases of the digestive tract, the bronchial tubes and lungs, and the whole urinary tract.

In the study of the circulatory diseases, largely through the dogged persistence and sound sense of a country physician (still happily living), Sir James MacKenzie, we have learned the use of methods of graphic record of the pulse beats in the wrist and neck and of the heart beat itself, and, what is more important, have gained from these methods an entirely new appreciation of the meaning of disorders of the heart action. Following hard upon this great achievement, we have been enriched with implements for easily estimating the grade of blood pressure in our patients and an electrical device (electrocardiograph), which supplement and carry forward beyond MacKenzie's observations the intimate knowledge of the heart action by photographic records of the action currents in human subjects.

Let me pause for a moment here to make but one comment on a topic suggested by the story of cardiac disease and the electrocardiograph—that wonderful instrument that reproduces all the varied streams of electric stimulus that in our heart muscles spell life or death—a topic that is controversial and densely charged with dynamite and asafoetida—the topic of what use has experimental medicine or animal experimentation been in all this. There are two assertions that I would recommend to each party in the controversy, and I suggest that they contain all that is essential—the rest being mostly abuse and waste of time. To those who deny the use of animal experi-

mentation, I recommend: first, "I see no proof that your experimentation led to these wonderful discoveries," and second, "If you think you have proved to me the wonderful value of your wonderful experiments, I need only add that my attitude toward the results is the same as that of many to the asserted roundness of the world, that it is not true." To those favoring animal experimentation, I would advise: first, like Socrates of old, I may as a philosopher admit that "anythnig is possible and all the glories of modern medicine might then have been achieved in some other way," but second, "It happens that these wonderful discoveries were not discovered in any other way, but in just this way—and all honor to those whose names are found in that glorious company of benefactors."

Optical and mechanical means have been devised for exploring the oesophagus and stomach and the urinary tract almost to the kidney itself, while my wizard colleague, Chevalier Jackson, is lifting stray collar buttons, nails and safety pins from careless peoples' bronchial tubes and lungs—*citius nictu*, or at least, *citius dictu*, for he rarely speaks even if perforce he must occasionally wink.

And lastly, let me call to your mind, for every layman knows its triumphs, what a whole continent of unexplored territory the X-ray has opened up to us—not alone yielding rich results in diagnosis, but in treatment as well.

By an assortment of these various methods of study, we have made great progress in the sure diagnosis of many obscure diseases and of many unsuspected conditions not yet manifest in troublesome symptoms, we have obtained a far wider knowledge of the interrelations of various conditions, means of estimating the functional efficiency of organs, and have been transported a long way on the road to an understanding of the fundamental causes that lead to many maladies now wholly obscure. It is to the same modern methods that we have recently had opened to us some glimpses of a group of diseases affecting or originating in our ductless glands that may ere long be found essential in the development of personality as well as disease, though at present their too ardent study is a little liable to create some derangement of personality.

I realize that much of what I have alluded to is but dry hearing and I apologize on behalf of my predecessors and friends, the internists, for having discovered so much that I needs must bore you to extinction with a mere recital of the headlines. For myself, I offer no apology at all for it was necessary that I should bring you to the last extremity of fatigue that you might be a little sympathetic with me and the other victim concerned in this discourse—the unfortunate patient who is to have unlimbered and trained upon him all the batteries of diagnostic modern medicine and all the chemical warfare of carboniferous derivatives and sero-colloidal cures.

It seems to me as if Voltaire may have had great prophetic vision of modern methods, for he is reported to have said to the surrounding physicians and friends: "Leave me friends to die in peace."

Consider for a moment what a diagnosis entails: blood count, blood culture and blood chemistry, a gastrointestinal X-ray study, and two or three local X-ray studies as well, the laboratory testing of all the secretions and excretions and exudations that can be got without much effort, or by gastro-duodenal tubing, ureteral catheterization, and by puncturing the serous cavities; polygraphic and electrocardiographic tracings of the heart beats, estimation of the blood pressure, studies of the respiratory air and determination of basal metabolism, examination of the stomach contents at a fixed period after a meal and fractionally every few minutes for a span of two or three hours, a special examination of the nose and throat, the oesophagus, the larynx and the eyegrounds, careful determinations of the nervous reflexes and the integrity of the sensory nerve, pelvic examinations and cystoscopy and, if the strength and splendid normality of the individual has endured all this, perhaps, it might be well to add a few psychological tests and a little intensive investigation of his living relations and his forbears. Think of the time consumed, of the discomfort and exhaustion and of the extravagence of cost involved in such a program when it is unnecessary!

Had I not at wearisome length proclaimed my more than ordinary appreciation of that which modern medicine has given us, nothing could have persuaded me to array in this fashion one of her glaring weaknesses. We all know the ostentation and the excesses of some of our newly rich and we have even seen newly erected nationalities try the patience of their

warmest supporters by the arrogance of sudden power. The spendthrift nature flourishes with greatest luxuriance when acquisition has followed mushroom growth and where no controlling influence of sober habit holds it in check. It is but fair to say that my intimations of excess do not apply to those difficult cases in which only extended search will uncover the solution nor to the systematic intensive study of cases in well equipped institutions devoted alike to medical research and practice. Many surprising discoveries have been made where systematic application of a certain method was made to many varied conditions. My thoughts are rather devoted to routine work.

I am no discoverer nor innovator in suggesting that the profligate abuse of modern methods needs our earnest and thoughtful consideration. Many who have not especially admitted an abuse but realize the impossibility of extending the benefits of such methods to all the sick, have suggested ways and means of helping out, either by establishing municipal or other public centres, by building up associations of physicians as diagnostic clinics or in similar ways. All of these efforts are commendable and deserve support and it is particularly fortunate that the public has begun to realize a new role of our hospitals, as centres where the costly equipment of modern investigation with the personnel to use it to the best advantage may be collected for the benefit of the whole community, rich and poor alike. But reflection must make it clear that the complete and often in many particulars quite needlessly detailed investigations of normal or but slightly abnormal cases is an extravagence that must rob more necessary cases of the benefits of the facilities at hand. I have seen a bound volume of studies of a confessedly normal individual which contained practically all the examinations I detailed a few moments ago, and, were it desirable, could easily relate to you scores of cases in which machine-made examinations of all sorts were conducted without the slightest reference to the necessities of the patients. Lest I seem to bear too critically upon my own profession —and no one has less right or wish to do so than one who has been occupied in teaching medical students for a generation—let me say in the beginning that the public is largely responsible. We hear much in cities from well-to-do and solid people about the passing of the good old family doctor who used to treat them in every ailment, but our friends are forgetful that the family doctor still exists in smaller towns and country districts and even in large cities in sections where wealth and luxuries are rare. The same friends, however, are the first to search out all sorts of specialists and to question the wisdom or the motives of their own doctor in conducting a simple case without recourse to sublimated specialism.

But we as a profession cannot lay the blame entirely on the layman's desire to have the "latest and the best." We have ourselves suffered a loss of proper balance in the too rapid acquisition of knowledge and have allowed an atrophy of our powers of observation and reflection to grow upon us. New methods of investigation in many cases first give us the power to distinguish obscure conditions and later permit a broader study by simpler means of the very conditions that were first differentiated by refined technic. Thereafter, the refinement ceases to be of daily use except in the hands of those whose facilities enable them to push still farther the realm of knowledge. The electrocardiograph and polygraph have cleared up for us many of the knotty problems of cardiac arrhythmia and chemical and physical studies have given us somewhat more definite classifications of renal diseases; but, in daily routine, the trained clinician can, with relatively few exceptions, dispense with these refinements. Bacteriologists have taught us by elaborate and difficult methods the distinctions in the type-forms of certain infections, but it is his duty as well as that of the clinician to find short cuts to rapid diagnosis. And above all else, we need today a substantial return to some of the habits of such old-time clinicians as I first mentioned, which will give us more broadly trained internists—well grounded in all the modern sciences, but not so stunted in their perceptive and reflective faculties. It is quite true that medical students now-a-days are well taught in better medical schools and a fair balance is usually observed between the all important study, on the one hand, of the patient himself, his history and his habits, his occupation and environment and, on the other hand, of all the methods of refined modern investigation. Naturally, one will see more emphasis in one aspect, another in the other. But, as time advances after graduation and

new facts and methods accumulate, the tendency grows on many to relax of their personal efforts to determine matters for themselves and to pass on the decision to someone else—a laboratory technician or a specialist of whose value in diagnosis they have exaggerate noting, based upon their unfamiliarity with details of new discoveries and a feeling of incapacity to form a proper judgment. I can easily believe that where one has a fragmentary knowledge of new things it is easy for the conscientious man to hand over his problem to another and accept the decision even when it runs counter to his most grounded convictions. From this point, the descent is easy to the habit of transferring all his problems to other agencies. The only corrective for this is a wider adoption of post-graduate study as a custom of our profession. This may be through the activities of county societies properly organized, through sub-committees of the local profession, or through travel and attendance at a suitable graduate school or a general hospital where facilities are granted. No one of these agencies alone will suffice, for the need is great and extensive.

I would submit it as a general proposition that the hospitals throughout the country owe it to the profession as one of their major duties to institute such opportunities for the continuation studies of those whose practical work has prevented their keeping fully up to date, and that hospital physicians and surgeons owe to their brethren of the profession such devotion to their special work that they may be graduate instructors of the less fortunately situated.

To the graduate himself I would commend as an indispensable proposition—that all is not true that is new; the wise man listens patiently and reserves his judgment. Further, I should like to add that a considerable need of the day in schools—both graduate and undergraduate—is that the teachers of practical branches should be real clinicians, and this applies to surgery as well as medicine. The complexity of our present day situation requires much hard thinking and working to devise ways and means to make available the splendid fruits of modern science—it may be of some short cuts in methods, it may be by more thorough-going review of clinical conditions, checked by the most refined technic of scientific methods.

Let no one mistake that the purpose of this address is to discourage the abundant use of all modern methods where needed or to give countenance to their neglect by physicians who will not learn their value. Were the latter the case, we should indeed incur the contempt of all men for a profession that does not take its own contributions seriously.

1728 *Spruce Street.*

CONCERNING RENAL COMPLICATIONS OF URETERAL STONE AND THEIR PREVENTION.*

By LEO BUERGER, M. D., New York, N. Y.

Since the development of special methods of attacking ureteral stones through the cystoscope, the attention of urologists has been focused on the treatment of stones impacted in the lower pelvic ureter. Little mention has been made of a more important phase of therapy which concerns itself with the treatment of calculi situated anywhere in the ureteral path, and from the very onset of the symptoms. Some of our most eminent authorities in recent contributions seem to accept the view that Nature should be permitted to expel a ureteral calculus without instrumental aid. It has been said that in the absence of intense and recurring pain lasting for some time, or in the absence of complications in the kidney, such as acute cortical or perinephritic lesions, or in the absence of urinary retention sufficient to damage the kidney, one can well afford to await spontaneous expulsion of the calculus, provided it is not too large to pass; and, that as a rule it is best to allow a stone less than two centimeters in diameter to pass spontaneously.

Little can be found in the literature bearing upon the advisability of the application of the cystoscope as a therapeutic measure from the very beginning of the clinical history.

If I may anticipate by presenting the thesis of my present paper at this juncture, I would state that cystoscopic intervention is advisable in almost all cases of ureteral stone within a short period after the stone has found lodgment in the ureter in its descent from the kidney.

This view is somewhat at variance with that

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of clinicians and even some urologists who, out of conservatism, have been wont to counsel their patients to wait weeks or months for the stone to pass. Whilst on the one hand there are those who intervene too early in a case of descending ureteral stone, as well as in a case of renal calculi, there are others who withhold all methods of treatment, except merely symptomatic medical care. If it can be shown by clinical, surgical and pathologic observation that it is a fallacy to wait altogether for spontaneous expulsion of calculi in the ureter, my hypothesis that cystoscopic treatment should be given early in the clinical course will find substantiation. Such a view has been arrived at, firstly, by reason of the most satisfactory results obtained by the application of the author's special cystoscopic methods for facilitating the descent of ureteral calculi, and secondly, in a review of the outcome of those cases in which such treatment had not been applied.

To accept the dictum that calculi one centimeter or more in diameter, even to a diameter of two centimeters, are often expelled spontaneously by Nature, is a generalization that is fraught with considerable danger to the individual case, although true in many instances. For, a sense of false security is thus very easily inculcated. So many are the complications in the ureter and kidney, and so great is the danger of impaction and local growth of the calculus, that we feel convinced that many of the cases in which ureterotomy or some renal operation has become necessary would have escaped either one or both of these procedures by the timely application of the methods that I shall describe later. Even though it be true that a stone of considerable size may occasionally pass spontaneously without aid, our aim should be directed towards the prevention of the complications (which I shall discuss further on), and towards expediting the downward travel of the calculus in its course through the ureteral channel.

It may be accepted as proven by cystoscopic researches that certain transitory or even permanent lesions are wont to accompany the majority of attacks of so-called ureteral colic. These are the purely mechanical results of obturation of the conducting system with retention of excretion products in the pelvis of the kidney and ureter and consequent infection.

Hydroureter and Hydronephrosis. The rôle of retention of urine in the production of colic has not been correctly appraised, since it has been generally believed that the mechanical effects of the descent of the ureter stone, either from the kidney into the ureter, or down the ureter, was sufficient cause, either by virtue of the spasm created, or by the mechanical destructive effects on the inner surface of the ureter, to account for the symptom of pain. If one, however, makes a practice of performing a cystoscopy on a large number of cases of ureteral colic or renal colic during the attacks, one will be surprised to learn that not only acute pain, but persisting severe pain in the lumbar ureteral region is in most instances due to the distention of the pelvis of the kidney and ureter with retained urine.

The immediate lesions as well as the complications can be best combated by the establishment of drainage through the ureter alongside of the calculus. It is by the cystoscopic methods to be described that such re-establishment of the continuity of the conducting channel can be brought about. In other words, by certain conservative cystoscopic procedures, we aim not only to further the passage of the calculus, but to conserve a sufficiency of drainage, thereby diminishing or even obviating the dangers of renal infection.

The necessity for more active interference rather than the expectancy, advised by some, is based on the following facts:

Firstly, ureteral calculi more than one-quarter of an inch in diameter are frequently arrested in certain well known narrow portions of the ureter where they become permanently incarcerated, the blockage produced leading to dilatation of the ureter, dilatation of the pelvis of the kidney, secondary infection and destruction of the renal organ.

Secondly, even small stones over two-sixteenths of an inch in diameter and occasionally three-sixteenths may be similarly arrested. We are not able to prognosticate in which instances such permanent halting with blockage will take place.

Thirdly, by the passage of one or more ureteral catheters of varying sizes, or by the simultaneous passage of bougies and catheters, or bougies alone, ureter drainage can be established and a definite effect produced upon the descent of the stone.

Fourthly, even large stones (one centimeter

or more in diameter), can be attacked by the above and other methods.

Fifthly, the timely introduction of ureteral catheters can be demonstrated to be most effective in the prevention of complications in the kidney.

Sixthly, the emptying of the distended renal pelvis by reason of ureteral blockage by stone is a most reliable means, not only by relieving the suffering of the patient, but also by conserving the integrity of the kidney, which might be otherwise irremediably damaged.

In addition to the above reasons for cystoscopic intervention, there are other symptoms that often require relief. And this cannot be obtained by the use of drugs, either morphine, benzyl benzoate, or other means. The employment of the ureter catheter, however, is a most remarkable and effectual measure which we recommend early in the clinical course of the malady.

The acute symptoms that may make a demand upon our resources are unusual degrees of retention of urine in the kidney, repeated colic with or without fever, symptoms of intestinal obstruction and anuria. It is self-evident that when colics are repeated and become insufferable (usually due to the large amount of retention in the affected kidney), and if there be fever, either aseptic or due to infection, the renal pelvis must be emptied as soon as possible, and that cystoscopic methods must be applied.

But it is also in the subacute and chronic forms of the malady that we advise the early introduction of instruments into the ureter. It is perhaps only in those mild attacks with or without hematuria, which are due to concretions or very small stones, that we advise waiting. Here the patient may be allowed to undergo X-ray examination after the acute symptoms will have subsided and, if this is negative, be permitted to wait for a recurrence of the symptoms. But even here, if the attacks be repeated, the patient should submit to cystoscopic examination and treatment. In the very mild cases, if the hematuria is severe, and if the pain recur within a short period or be continuous over more than twenty-four or twenty-eight hours, cystoscopy is also in order. Even in the mild cases, when there is fever or other suggestion of infection, one should not wait longer than twenty-four to forty-eight hours before introducing a catheter into the ureter.

In all cases where the attacks are unusually severe, persistent, with the presence of rigidity or a renal mass, with or without complications, such as fever, intestinal obstruction or suppression of urine, it will not be wise to procrastinate.

Varying Degrees of Hydronephrosis and Hydroureter. As before mentioned, the usual sequence of ureteral obstruction due to stone is dilatation of the conducting system above the obstacle implicating the ureter and renal pelvis. In fact, most of the symptomatology is due to this dilatation, particularly when pain is intense, and the urinary secretion continues. In rare instances, after a certain degree of stretching of the renal pelvis and ureter has occurred, unilateral inhibition of secretion takes place. Relief is often the result and thus not due to abolishment of the obturation. Or, as the kidney ceases to secrete, the retained fluid gradually leaks alongside of the stone or is absorbed, and a small kidney is the result. This, however, is not the usual outcome, and we are usually confronted with the mechanical effects of hydrostatic pressure, which afford a problem both for the relief of symptoms and relief of pathology.

The ordinary course of events, when a stone becomes impacted in the ureter, is an attack of pain with ballooning of the ureter and pelvis until the pressure becomes so great that urine may find its way between the calculus and the ureteral wall, and spontaneous relief is obtained; or, by virtue of the pressure and repeated colic, the stone passes to another or lower portion of the ureter and, in its descent, permits of the evacuation of the retained renal contents. In both ways amelioration or disappearance of the pain is brought about.

All will admit that therapeutic measures will find application in the acute attacks of retention. There is, however, another type of subacute, or more or less chronic retention of urine above the calculus, whose clinical course does not seem to have been appreciated by the clinician because of the paucity or absence of symptoms in many of the cases.

In short, accumulation of secretory products may occur to varying extents, either leaving (1) remediable alterations in the kidney and ureter, or (2) eventuating in irremediable ef-

fects, depending upon the duration of the hydrostatic pressure.

Remediable Forms of Distention. Dilatation of considerable duration (weeks or even months), is apt to respond to drainage with the ureter catheter. The absence of symptoms in many of the cases may mislead us into a casual disinterested attitude towards the application of remedies, and often it is only when there are exacerbations of pain or attacks of infection that the true nature of the changes that are going on in the kidney and ureter are properly appraised. It is for these reasons that a correct estimation of the conditions above the calculus should be arrived at by the proper cystoscopic measures.

When, by reason of great duration of the distention of the kidney and ureter, marked pathological lesions have taken place, with atrophy of the renal cortex, the opportunity for a restoration to normal will have been lost.

An excellent example of more or less chronic dilatation of the pelvis and ureter in a case of stone impacted in the lower ureter is afforded by the clinical history of this patient, in whom the existence of a dilated pelvis would have been overlooked, had not the cystoscope been frequently applied.

Moderate Hydronephrosis With Calculus in Lower Ureter Reduced and Treated by a Ureter Catheter.

H. K., male, had an attack of left renal colic two years previously. He had been well until one month ago, when he had an attack of renal colic with blood in the urine and pain in the left lumbar region radiating into the bladder.

Cystoscopy, November 16, 1916. The right urinary tract was negative. In the *left ureter*, 2 cm. above the bladder, there was an obstruction which was finally surmounted, followed by a sudden gush of urine, more than 40 cc. being collected in a continuous stream. After thorough evacuation of the pelvis of the kidney, pyelography was done, and a typical hydronephrosis demonstrated with a moderate degree of dilatation of the pelvis and calyces. A shadow was found about 3 cm. from the bladder, corresponding to the situation of the stone.

In spite of the advice given the patient to have the renal pelvis emptied at least once a week or oftener, if necessary, he did not present himself for examination until the 18th of December, 1916, about one month later. Cystoscopy revealed the fact that the left renal pelvis contained about 25 cc. of retained urine. which was completely evacuated after the catheter had been allowed to remain *in situ* for one hour. A second catheter was passed up alongside of the first, which caused considerable dilatation of the ureter and permitted the stone to descend.

Examination, March 12, 1917, exploratory cystoscopy, to determine whether the obstruction still existed. The catheter passed without interference, and there was no retained urine in the kidney demonstrable.

Subsequent X-ray examination failed to reveal the presence of the stone.

This case, as well as others of this type, permit us to draw the following lessons:

First, chronic states of hydronephrosis may result from leaving the expulsion of the stone to Nature alone.

Second, interference with the cystoscope and employment of catheters to drain the kidney and to stimulate the passage of the stone by dilatation of the ureter are valuable and reliable means not only in combating the distention and restoring the pelvis and the kidney to normal, but also in furthering the passage of the stone.

Third, the case described demonstrates conclusively that an interval of one month is too long to wait for cystoscopic treatment.

Fourth, if the course of this case be compared with others in which treatment had been more frequently applied, it will be noted that the restoration of the renal pelvis to normal capacity was usually accomplished in much shorter time.

Fifth, the absence of symptoms must not make us believe that the kidney is emptying itself.

Sixth, it may only be during attacks of acute swelling of the ureter about the stone with increasing distention, or with the advent of mild degrees of infection, that attacks of colic are noted, the patient feeling well in the interim.

Two types of clinical course are encountered; those cases in which there is more or less constant pain, where intervention of some sort is usually demanded for relief, and secondly, those insidious types whose manifestations may be absent. Absence of pain, therefore, must not be interpreted as indicative of the absence of hydronephrosis.

Therapeutic Conclusions. First, treat-

ment with the ureter catheter should be given so as to prevent chronic hydronephrosis, both by emptying and dilating the ureteral channel, even if this does not move the ureter calculus.

Second, in every instance of positive calculus obstruction demonstrable either with the X-ray or with the cystoscope, cystoscopic treatment is in order, unless the stone is immediately passed within twenty-four to seventy-two hours.

Third, attacks of pain are usually an indication of retention of urine.

Fourth, continuous pain usually indicates complete retention.

Fifth, the absence of pain after one or more attacks of ureter colic does not imply the absence of renal distention, for chronic distention may exist with rare attacks of exacerbations, the latter manifestations being the only ones that arouse the interest of the patient.

Sixth, treatment should be given in the free interval, particularly if data are at hand that suggest that retention is present.

Ureteral Calculi Requiring Ureterotomy and Renal Drainage. Many are the instances in my own experience in which I have been convinced that the timely application of the cystoscope, immediately after or during the first attack of renal or ureteral colic, would have prevented infection of the kidney and avoided the necessity of operative procedure. Let us analyze a single example.

Small Ureteral Calculus Impacted in the Lumbar Ureter, With Renal Infection, Infected Hydronephrosis; Ureterotomy, Nephrotomy, Recovery.

L. L. Three attacks of renal and ureteral colic in a young woman: the first three months previously in the left lumbar region, radiating to the pubis and lasting two days; the second, six weeks ago with fever, lasting three days; and the third, four days before examination, with temperature as high as 102°.

September 12, 1921, cystos opy demonstrated obstruction at 20 cm. from the left ureteral orifice in the bladder, a No. 6 French catheter being too large to pass. A smaller catheter drained off a test tube full of purulent urine, and was allowed to stay *in situ* for fifteen minutes so as to drain the kidney (bacillus coli in the urine.) X-ray examination showed considerable enlargement of the left kidney and, between the third and fourth transverse processes, a small shadow less than one-fourth inch in diameter, doubtless a stone in the ureter.

In view of these findings an obstructed ureter, an infected kidney above, a history of three months' duration and the temperature, operation was advised, although another attempt to drain the kidney and mobilize the stone was suggested.

With temperature ranging from 100° to 101.4° while at the hospital, from the 12th of September to the 14th, another cystoscopy was done on the 14th, together with X-ray examination, the calculus being found well imbedded in its previous situation.

Operation, September 14, 1921, revealed a large kidney with edema of the perinephritic fat particularly about the lower pole of the kidney, the kidney bluish, cyanotic and adherent. The ureter was at once located and lifted up with the finger and the calculus brought into view, being tightly incarcerated in a small ureter. The ureter was distended at the site of the calculus, its wall being tensely stretched, pale and almost whitish. A clamp covered with rubber tubing was applied above the stone so as to prevent the escape of purulent urine. A small incision was made, and the calculus extracted. One suture was applied. While this was being done, the clamp slipped inadvertently. A gush of pus through the opening in the ureter followed, demonstrating that the pelvis of the kidney was filled with thick, purulent material. Then a small button-hole nephrotomy was done to drain the kidney, the capsule of the latter being stripped. Uneventful recovery.

Epicrisis and Conclusions. This case teaches us that a small calculus well within the size that can be made to pass by cystoscopic methods, can remain in the lumbar ureter for weeks or months without passing, and be complicated within three months from the time of its impaction, with infection of the kidney, necessitating an extensive operation.

Second, the fact that the catheter was able to pass a short distance beyond the stone, even after three months, would indicate that more could have been accomplished at an earlier moment.

Third, the prevention of overdistention of the renal pelvis by the timely use of the catheter would doubtlessly have contributed at least toward the prevention of infection of the kidney, even though the two catheter method of the author had not been previously

successful in causing the complete expulsion of the stone.

Fourth, small stones, particularly in the upper lumbar ureter, are just as apt to become incarcerated and be complicated by infection of the kidney as large ones, and it is these, therefore, that should be attacked early, so as to facilitate their descent.

Fifth, infection of the kidney in my experience, as a complication of stone, both as to severity and frequency of occurrence, varies inversely as the distance between the stone and the kidney increases; so that, the greater the distance between the stone and the kidney, the less the chances of severe destructive and infectious influences on that organ. Therefore, every attempt should be made to further the passage of the stone to a part of the ureter in which complications in the kidney are apt to be less extensive and less severe.

Other Complications. These may be divided as follows:

First, marked hydronephrosis with secondary infection.

Second, infection of the non-hydronephrotic kidney.

Third, rupture of the hydronephrosis or pyonephrosis.

Fourth, perinephritic abscess.

Fifth, dilatation of the ureter.

Sixth, sclerosis and stricture of the ureter.

Seventh, secondary stone formation in a dilated ureter or in a ureter above a stricture.

Eighth, periureteritis and periureteral abscess with or without ureteral perforation.

Time will not permit me to give a comprehensive account of the variegated pathology in both kidney and ureter that may result from the retention of impacted stone in the ureter. Suffice it to say here, that the finding of extensive hydronephrosis with secondary calculus formation and subsequent infection, necessitating nephrectomy some time in the clinical course, is a most common complication. Nor must we lose sight of the infections that may occur in kidneys that are small or very slightly dilated, for even these are prone to attacks of pyelitis, pyelonephritis and multiple abscesses, as also suppurative infarctions, when the obstacle in the ureter is not removed. We have encountered a large number of hydronephroses and even pyonephroses with rupture, the patient presenting himself with a large perirenal exudate of urine and pus. Occasionally, a perinephritic abscess will be diagnosticated clinically, where investigation will demonstrate infection through a dilated kidney, the ureter stone having been wholly overlooked.

Moderate and extensive dilatations of the ureter are so common as to require but passing mention. However, where marked and indelible alterations have been produced in the lower conducting system, grave changes in the kidney must result. The ureter behaves differently, depending upon the degree of obstruction and type of infection. Thus, there are cases where the ureter is found enormously attenuated and dilated, and in other cases the dilatation is but moderate and the sclerosis and fibrosis of the ureter wall are marked. Such sclerosis may take place not only about the stone, but above it; when in the neighborhood of the stone, it not infrequently leads to subsequent stricture formation, and the whole urinary tract may be compromised by a relatively minute lesion.

By virtue of the ureteral changes, dilatation, sclerosis and stricture, retention of urine with puddling takes place, leading to secondary stone formation in the narrowed portion of the channel.

Periureteritis is exceedingly common in the pelvic portion of the ureter, leading to the formation of large sclerotic masses of fat, in which the ureter is tightly imbedded, forming a mass which in itself plays a deleterious influence upon the ureter as a conducting mechanism. In the lumbar portion of the ureter we not infrequently encounter the formation of periureteral abscesses, particularly when perforation of the ureter takes place.

Methods of Preventing Complications of Ureter Stones. The title of this paper has called for a discussion of methods of preventing the complications of ureter stones. Such prophylaxis is tantamount to the application of the most improved measures for expediting the passage of ureter stones, and for relieving the kidney and ureter of the effects of distention and infection. The methods that have given me the best results during the last ten years may be summarized as follows:

First, the employment of catheters and bougies in the ureter.

Second, the use of olivary dilators, and

Third, instrumental intravesical procedures to remove calculi from the intramural portion

of the ureter by incision through the cystoscope or otherwise.

Much has been said regarding the removal of impacted stones through the cystoscope, and vague and general statements are encountered in the literature regarding the mode of manipulating instruments in the ureter for the expulsion of ureteral stones. Success, however, depends upon careful attention to minutiae, as well as to general principles, and I may, therefore, be permitted to go into detail as to the technic and procedure that have given me the best results. Let me say at the outset, that one should look askance upon the claims of those who would possess such unusual skill and such highly specialized cystoscopic instruments, as to enable them both to seize and extract a ureteral calculus when it lies above the bladder. Not only do I believe such statements to be gross exaggeration, but I wish to go down on record as expressing the view that any radical means sufficiently intensive to extract by force an impacted calculus within the ureter above the bladder is not only incompatible with the mechanical possibilities in the bladder and ureter, but, if possible, would be dangerous to the integrity of this channel.

Those who have had an opportunity to operate upon many cases of ureter stones will appreciate what force is necessary to bring about even a milking of the stone from one part of the ureter to another, when the channel is within one's grasp. To be sure, those calculi amenable to conservative treatment may not be imbedded so tightly. But even these require the more delicate procedures—those whose action is slow in bringing about dilatation of the ureter, and such as are successful by reason of the very tardiness of their action.

It will not be possible here to go into every phase of the application of my methods because of lack of time. Enough, however, shall be said to elucidate the chief points that are essential in the treatment of the usual type of cases encountered. Two large classes may be recognized:

(a) Cases with a calculus in the lower pelvic ureter (true pelvis).

(b) With the stone in the lumbar ureter or in the false pelvis.

The Treatment of the Ureteral Calculus in the Lower Pelvic Ureter.—First, by means of catheters or bougies. The armamentarium requisite for aiding the expulsion of ureteral stones, varying in size up to 1 cm. and even one-half inch in diameter, is in most instances, a simple one, and comprises a cystoscope, ureter catheters of sizes from 4 to 7 Fr. calibre, ureteral bougies in sizes of 3 and 4 Fr., and a Garceau catheter tapering from 11 Fr. to a terminal opening of about 5 Fr. It is only for certain special cases that are recalcitrant and do not respond to the author's catheter method, that the operating cystoscope, special olivary metal tipped bougies, punch forceps and scissor forceps are required.

So, armed with an ordinary catheterizing cystoscope in which one No. 6 catheter and a No. 5 catheter of the olivary style have been threaded, the affected ureter orifice is sought. With the stone in the intramural portion, or near the orifice, distinctive changes will be observed, such as swelling of the ureteral mound, and even edema of the ureteral orifice. But with the calculus at its most frequent location, that is, 3, 4 or 5 cm. from the bladder, no visible alterations of the intramural portions of the ureter and ureteral lip are usually in evidence. In many cases, however, careful attention to the ureteral mound, when the stone is as low as this, will reveal a slight protrusion of the corresponding portions of the bladder wall. A large ureter catheter (No. 6 Fr.) is introduced, and the findings and procedure will depend upon whether an obstruction is met or not.

(a) *Calculus With Obstruction.* An olivary tipped catheter must be used, since the whistle tips or other types of catheters may encounter artificial obstructions that are not due to the presence of a foreign body. With the stone in this situation, the catheter will meet with an obstacle which is either surmounted or not (passable or impassable).

Procedure in the Case of Passable Obstruction. When the catheter meets the obstruction, it is rotated on its long axis, withdrawn and introduced again if necessary, and will then finally surmount the obstacle and drain out urine which has been retained in the ureter and pelvis above. After evacuating the contents of the ureter and pelvis, the catheter alone may be allowed to remain in place from one-half hour to one hour, the cystoscope being removed, or, an attempt is made to pass the second catheter beyond the obstruction. This may or may not be feasible, depending upon whether the orifice is large enough to admit the catheter,

whether the patient is sufficiently tractable, and on whether the obstacle will permit the second catheter to go by. If one catheter alone will pass, this should be allowed to remain *in situ* for at least one-half hour, preferably one hour or more, and then removed. If pus be found in the kidney specimens, irrigation with mild silver nitrate solutions, such as one to one thousand, or one to five hundred, is in order.

The proper time for a second treatment of this sort varies according to a number of factors: First, a recurrence of acute colic with retention of urine; and, second, the advent of a second attack with continuous unremitting pain, with or without infection. Infection is never seen as the result of cystoscopic manipulations.

If no such complicating conditions arise, a second treatment may be undertaken one week after the first or earlier, an attempt being made to accomplish more and more at each sitting.

The Two-Catheter Method. This is the method *par excellence*, when applied sufficiently often and in the proper way, for expediting the passage of a ureteral stone. Either at the first séance or at the second, it will be possible by the proper manœuvres to pass two catheters into the ureter beyond the stone. In some instances it may require a great deal of patience, and we will be unable to accomplish our purpose until the third or fourth séance. Eventually, however, with the application of the correct technic, two No. 6 Fr. catheters, or one No. 6 and one No. 5, will be made to pass, and it is from this time on that quick progress will be made in causing the descent of the calculus, if some has not already been made in the previous procedures.

It will often be observed that the second catheter, which may be a smaller one, will at times pass only as far as the obstruction and no higher. The injection of olive oil or glycerin may aid its passage, as well as the lubrication of its tip with sterile vaselin. Or, if we wish, a small amount of adrenalin oil may be injected, admixed with two or four per cent novocain (five or ten drops)—methods which if used alone, are far inferior in their efficacy to the mechanical procedures. Until the second catheter passes, we should repeat the leaving of one catheter *in situ* for an hour or more, and cause dilatation of the intramural portion of the orifice by the graded use of two catheters of varying size or with a bougie. When finally we have succeeded in passing the two catheters beyond the obstacle, these should be introduced sufficiently high, twenty-five centimeters or more, so that in withdrawing the cystoscope, they may not be dislodged into the bladder. With the cystoscope removed and the two catheters *in situ* beyond the stone, the patient is carefully transferred to a stretcher carriage and allowed to remain there with the catheters draining from one-half hour to an hour or more.

The removal of the two catheters is also an important step. Both catheters should be pulled out simultaneously. As they are being withdrawn, considerable resistance may be encountered, so that at times some force may be necessary to extricate them. Indeed, by some sort of chemical process, the nature of which is hard to explain, agglutination of the catheter and the stone can and does take place, as a number of remarkable circumstances have taught me. It is by friction, however, that I believe the downward course is usually accomplished.

As the catheters are being still further withdrawn, we may in rare instances encounter another obstruction. The calculus agglutinated to the catheters in reaching the ureteral or urethral orifice may give rise to this sensation. In several cases the stone was immediately dislodged from its site of impaction in the ureter. In one case the calculus was drawn out through the urethra attached to the catheters (L. B.), these having been allowed to remain *in situ* over night. In another instance the calculus was broken up, which is a rather frequent result, and several fragments remained firmly adherent to one of the catheters, the rest of the stone having been withdrawn into the bladder. In other instances, the stone was displaced into the bladder, where it was removed with the forceps of the operating cystoscope.

The following most unusual and interesting example of acute symptoms, associated with stone in the ureter, beautifully illustrates the value of the retention of two catheters in the ureter, and how in one treatment the stone may be extricated.

IMPACTED OBSTRUCTING URETERAL CALCULUS, DILATED URETER AND RENAL PELVIS, WITH MANIFESTATIONS NOW OF INTESTINAL OBSTRUCTION, OF PERITONITIS, WITH FEVER, ABDOMINAL DISTENTION, REBOUND TENDERNESS, COMPLETELY RELIEVED AND CURED THROUGH CYSTOSCOPIC METHODS BY CAUSING EXPULSION OF THE STONE.

L. B., male, presented the following clinical picture: A distended abdomen, constipation, severe pain in the left iliac fossa, rigidity of the left iliac region, distinct rebound tenderness and per rectum a small indefinite mass, high up in the cul-de-sac on the left side, and moderate fever.

Cystoscopy, October 4, 1919, demonstrated that there was urinary retention in the left ureter and kidney, for about one ounce of turbid urine, containing some red blood cells, without pus, could be collected in a continuous stream when a catheter was inserted some 10 cm. into the ureter, suggesting a calculus low down in the ureter, with dilatation of the ureter and acute hydronephrosis.

In spite of the relief that was afforded in this case by the emptying of the kidney, distinct aggravation of the symptoms occurred on the following day, when the temperature rose to 102° in the afternoon. It was surmised that by virtue of the swelling of the ureter, obstruction had again taken place, so that catheterization of the ureter was again in order. On the following day, October 5, the tongue was coated, the left side of the abdomen was hard, with board-like rigidity, the temperature 103°, and the patient was unable to take food; in short, symptoms suggestive of a combination of intestinal obstruction and possibly peritonitis.

On the 6th of October, therefore, catheterization of the left ureter was done again, and the same phenomena of retention of urine could be demonstrated. So great was this retention that pressure over the kidney and bladder regions, as well as over the left iliac fossa, increased the flow through the ureteral catheter. Two ureteral catheters were then inserted into the left ureter up to the kidney and the cystoscope removed, *the catheters being allowed to remain in from the time of insertion, 3 P. M., on October 6, until the next morning* (9:30 *A. M.*).

On the 7th of October, the abdomen was distinctly less rigid, the patient's condition considerably improved, the temperature having dropped to 100°. The catheters were then slowly withdrawn simultaneously, and as they were being tugged, it seemed that an obstruction to their exit could be distinctly made out. *As they were pulled out, this resistance was seen to be due to the extraction of a ureteral calculus that was tightly adherent to the two catheters, as it was drawn through the ureter, bladder and urethra without being dislodged—a most remarkable and unusual occurrence.* From then on the patient made an uneventful recovery.

Such a startling result can only be rarely obtained, but the extrication of the calculus, either immediately upon withdrawing the catheters or shortly thereafter, has occurred so frequently in our experience, as to permit us to consider this the most valuable of all the procedures.

Ureteral Stone With Infection. Where a ureteral stone in the lower pelvic ureter is associated with infection—usually of the bacillus coli type—the question of operative intervention may have to be considered. Usually, however, the methods described, or with slight variation, will suffice to cause the symptoms as well as the infection to subside. Whereas most patients may be treated in ambulatory fashion at the office and allowed to remain one-half hour, one hour or more with the catheters in place, it is best to keep the patient with renal infection in bed at the hospital, where the catheter is allowed to stay in a longer period of time, two to ten hours, as a rule. Silver nitrate irrigations of the renal pelvis are recommended both after evacuation of the pelvis as well as before removing the catheters.

(b) *The Non-Passable Obstruction.* What may appear to be an insurmountable obstruction in the ureter will, by the application of correct methods and with patience, develop into a passable obstruction. The technic is as follows: The ureter below is injected with oil or glycerin, with or without adrenalin and novocain. One catheter is introduced and followed by a bougie of small calibre, 3 or 4 Fr., or one or more bougies, or whalebone filiforms are passed up the ureter with a view to passing the barrier, just as is our custom with filiform strictures of the urethra. When this fails, we still have recourse to dislodgment by means of the olivary dilators, which I shall describe later on. It is but in rare cases that

our patience and persistence are not rewarded by the passage of one catheter and finally a second beyond the stone.

Intervals Between the Séances. As before mentioned, it is our rule to give treatments at weekly intervals, where the following complicating factors are absent: Rapidly recurring attacks of pain, persisting hydronephrosis and hydroureter, infection, suppression of urine or reflex ileus. Any of these eventualities may require the precocious intervention with the cystoscope. Otherwise, it is well to wait, five, six or seven days, as a rule, a week, before repeating the treatment.

The Results of the Two-Catheter Method of Treatment. Four types of results are obtainable. First, renal drainage with dilatation of the ureter, but without immediate descent of the stone; second, immediate movement of the calculus downward; third, immediate expulsion of the calculus after treatment, either with the calculus attached to the catheters, or by the spontaneous evacuation of the calculus with micturition, or followed by removal from the bladder through the operating cystoscope; and fourth, expulsion, shortly (few hours to a day or more), after the last treatment.

Technic for Dilatation of the Intramural Portion of the Ureter. Occasionally, after several treatments, if the stone has made considerable descent, and if it has approached the wall of the bladder, near the beginning of the intramural portion of the ureter, it is advisable to have recourse to special manœuvres for the purpose of dilating this portion of the ureteral channel. To accomplish this, we make an attempt to cross the catheters in the ureter and simultaneously engage them against the ureter stone. The special manipulations employed are the following: After the introduction of the second catheter, the first one is withdrawn somewhat and reintroduced. Then a similar manœuvre is carried out with the second catheter. These procedures are repeated until we find that, by simultaneously pulling upon both catheters with the ureter orifice in view, the catheters instead of pulling out in the line of the ureter, are made to diverge. In doing so, the ureter orifice is forcibly dilated. This effect is produced not only at the orifice, but throughout the ureteral wall, and occasionally such force can be exerted upon withdrawal as to actually produce a downward movement of the stone. In a few cases the stone was made to pass through the intramural portion of the ureter by this method, *and seen to emerge under the guidance of the eye.* As a rule, however, the effect is not so striking and accomplishes merely the dilatation of the lower ureter, with or without immediate appreciable movement of the calculus.

The Treatment of Calculi in the Lumbar Ureter. The problem here is somewhat more difficult, for, not only is the impaction apt to be less easily surmounted, but also because a small calculus may be occasionally caused to move back into the pelvis of the kidney. However, the general methods employed are the same, except that greater care must be exerted to refrain from withdrawing the catheters as the cystoscope is removed.

The Use of the Author's Olivary Dilators. This method was suggested by me some nine years ago. It employs a bougie electrode whose proximal end is furnished with a screw thread and whose distal end is provided with a coupling for connection with the high frequency machine. The screw end allows of the attachment of small olivary tips of varying sizes from 5 to 15 Fr. The bougie is introduced through the operating cystoscope into the ureter, whose lumen is gradually dilated by the successive employment of olives of increasing size. Originally, the d'Arsonval current was suggested as an adjuvant, although more lately it has been found that as good results can be obtained without the use of electricity.

This method is applicable under two conditions: Firstly, when the two-catheter method fails to coax the stone beyond a certain point, and the lower ureteral channel is too narrow; and secondly, in the case of larger stones, particularly when these have been imbedded for a considerable period of time.

The olivary dilators are exceedingly efficacious, not only in dislodging a calculus that has been well incarcerated, but the dilating effect produced is exceedingly valuable. We anoint the olive well with vaseline so as to make introduction easier, and attempt not only to reach the stone, but gradually to insinuate the olive beyond the stone, which it will frequently pass. When carefully used and rotated on their long asis, as soon as an obstruction is reached, and if force be avoided, they can be readily made to pass the calculus with a little patience on the part of the operator.

In my experience, I have never encountered

any deleterious results from the application of olivary dilators. Many are the instances of calculi (1 cm. or more in diameter), that had been arrested in a lower ureter for months, that have been made to pass by this method.

Large Ureteral Stone Impacted Four Inches From the Bladder Made to Pass by the Use of Olivary Dilators.

A. G., male, 57 years of age, had had attacks of left renal and ureteral colic for about five years, with frequent hematuria. He consulted me October 10, 1916, with a history of having had pain in the left flank and ureteral region for several months. On that day X-ray examination demonstrated a calculus over the left sacroiliac synchondrosis, three inches lower than demonstrated in 1914, a period of two years. In all probability this passage was accomplished during one attack, so that it is fair to assume from the history that the calculus had become impacted at the base of the sacrum for some time.

October 27, 1916, X-ray examination showed a calculus almost two centimeters by less than one centimeter over the sacro-iliac synchondrosis, about four inches above the bladder, in the course of the left ureter.

Cystoscopy demonstrated an obstruction in the left ureter between nine and ten centimeters from the orifice, and no urine was obtainable from the corresponding kidney. A shadowgraph catheter inserted identified the shadow as being in the ureter. One week later at cystoscopy, one catheter was made to pass beyond the calculus.

November 16, 1916, dilatation with olivary bougies to 11 Fr., and a No. 9 Fr. olive passed beyond the stone to a distance of about 20 cm., thus dilating the ureter considerably. X-ray examination showed the olive beyond the situation of the stone.

December 5, 1916, dilatation with the olives again, stone having descended somewhat.

December 14, 1916, stone still further down, approaching the true pelvis. The ureter orifice was dilated sufficiently for the stone to pass. This stone was passed spontaneously shortly thereafter.

Special Intravesical Operative Procedures. When a calculus of considerable size (approaching one-half inch or more), has been arrested in the intramural portion of the ureter for some time, particularly when it has caused protrusion and marked edema of the ureteral lip, it presents a problem for solution with the operating cystoscope. With the author's punch forceps and scissors, the upper lip of the ureter can be incised and the stone then dislodged. It may then be grasped with the forceps and directly removed or manipulated out with catheters and bougies.

Ureteral Meatotomy for Impacted Ureteral Calculus. An interesting example of a stone one-half inch in diameter which had been impacted for some time in the intramural portion of the ureter and was made to pass after incising the upper ureteral lip is worthy of citation:

S. B., female, age 52, consulted me on the 8th of November, 1920, with a history of attacks of right renal colic for about eight years, accompanied now and then with chills and fever. Cystoscopy showed a moderate degree of cystitis, the right ureteral mound tumefied, the orifice small and its appearance suggestive of a stone just behind the orifice. It was possible to introduce a ureteral catheter with considerable difficulty beyond the stone, but unable to dislodge it. X-ray examination confirmed the diagnosis of calculus by the finding of an ellipsoid shadow about three-eighths of an inch by one-half inch at a point corresponding to the situation of the stone as diagnosticated at cystoscopy, that is, just above the orifice.

On November 12, 1920, the stone was still in the same situation, and the question of operative intervention was considered in view of the fact that the orifice was so small that the passage of such a large stone through it was considered out of the question. However, it was decided to cut the orifice and fulgurate the margin of the incision with a view to stopping the hemorrhage. This was carried out on the 12th of November, when catheterization was found impossible. Immediately after the cutting of the orifice, the stone was partly visible, although still fairly imbedded in a pocket of mucous membrane and, due to the irritability of the patient, it was decided to wait until the following day before making further attempts to dislodge it from its bed. This was not necessary since the patient passed the stone spontaneously soon thereafter.

1000 *Park Avenue.*

PRESIDENT'S ADDRESS.*

By ALFRED L. GRAY, M. D., Richmond, Va.

Mr. Chairman, Fellows of the Medical Society of Virginia, Ladies, and Gentlemen:

One year ago, in Petersburg, I was, for a few moments, overwhelmed with delight at the unexpected realization of my dreams for the dim distant future, when I was informed of my election as President of this grand old organization. I have said, as you may have observed, that my delight was for a few moments. This statement I make most advisedly for there very soon began to dawn on the tapestried wall of my dream room a vision of the responsibility that accompanied the great honor. In the midst of this vision there loomed up in bold and unerasable characters those which appeared at a certain ancient feast. Having previously more than once beheld a similar vision, I had little difficulty in making the correct interpretation. In searching myself to see wherein the truth of my vision was most conspicuous, I recalled at once that it had been customary, from the beginning, at each annual meeting of this Society, for the President to deliver on the opening night what is known as the "President's Address." Those of you who have heard my efforts, even the most charitable of you, will not be able to deny that the words of the handwriting are as true of me in the matter of delivering an address as in any other of the innumerable respects. Having been condemned in the beginning, therefore, I shall not tempt Fate, but shall present to you a few suggestions that I trust may lead toward the betterment of our beloved profession, and especially that may be of some good to those who constitute our citizenship throughout the confines of our state.

I wish, first, to bring to your attention the campaign that will be waged throughout the nation from October 30th to November 5th. This week will be known as "Cancer Week." During this period every possible method known to those who have studied the subject of cancer prevention and control will be brought into use with the purpose of educating the public as well as the medical profession in the means of early recognition, prevention, and cure of cancer. This campaign is under the auspices of and was inaugurated by the American Society for the Control of Cancer.

Each state has its own organization and all these will pursue the same general plan. Dr. Robert C. Bryan, of Richmond, is State Chairman, and Miss L. F. Reid, of Grace Hospital, Richmond, is Secretary. The central committee comprises many of the leading men and women of the various professional, civic, social, and industrial organizations, who have promised to lend every effort toward the success of this crusade against a pestilence that destroys annually 90,000 of the population of the United States, and last year claimed 1,284 of the citizens of Virginia.

Let me urge upon you, physicians and layman alike, to give your heartiest co-operation to this movement directed toward lessening the sorrow and anguish inflicted upon so many of us by this most terrible malady. To this end I recommend that the Medical Society of Virginia endorse the work of the American Society for the Control of Cancer, and that the Executive Council appoint a committee of thirteen, one from each congressional district and three from the state at large, and designate the chairman thereof; this committee to be known as the Committee on Cancer or some other suitable title. The duties of this committee should be to co-operate with the State Committee of the national organization and take such other measures as it may deem wise and feasible toward preventing the ravages of this dread disease.

Secondly, I wish to urge the members of our component and associated societies to take a keener interest in their local organizations. There are now fifty-one component societies and one associated society, which have charters from our state association. These represent seventy counties, leaving thirty that have no organization. The doctors of these counties should take steps immediately to perfect an organization and apply to the Executive Council at once for a charter. There is no other way whereby you can have proper voice in the House of Delegates.

I wonder how many of these societies are making the most of their opportunities! Each society should have a fixed meeting time and either a permanent meeting place, or else there should be an orderly rotation to suit the convenience of the members. There should, of course, be a regular order of busi-

*Read at the fifty-second annual meeting of the Medical Society of Virginia, in Lynchburg, October 18, 1921.

ness, including therein the discussion of matters of local professional interest, but I wish especially to advocate the introduction of the journal club feature as one of the most interesting and instructive parts of the program. A half dozen men can each subscribe to different leading medical, surgical and special journals, and each be prepared to review the one of his choice at each meeting. In this way the entire membership can have full benefit of all the best current literature with only the cost to him of one subscription. In no other way can the busy doctor keep half so well abreast with the progress of his profession as by thus acquainting himself with what others are doing. If the journal is properly reviewed, little time is consumed in the presentation of that review and the kernels of the whole list of articles published in the chosen journals may be obtained in a short session. Will you not try the plan? It possesses most of the educational advantages that are obtained by the association of several so-called specialists in the practice of what is now becoming so popular in the larger towns and cities under the name of "group medicine."

Above all, attend your meetings and if they are not what they should be, it is your duty to try to make them worth while. There is perhaps no better index to a doctor's progressiveness and up-to-dateness than may be obtained from a glance at the roll of attendance of his medical societies.

Thirdly, may I not also remind you that in addition to being doctors, we are citizens. We owe to ourselves as well as those around us, the duties of good citizenship. Most of us become so absorbed in what is commonly called our "shop" that we get in a rut and follow its course from day to day, neglecting to interest ourselves in affairs not immediately relating to our own calling. The physician is naturally a man of power. He has been obliged to demonstrate a fair amount of ability on at least two occasions or else the laws of our state would not permit him to pursue his profession. His days and nights are consumed in giving advice and so his neighbors learn to respect his opinion. Let him extend some of his counsel beyond the narrow limits offered by the sick and wounded and see if better roads, better schools, better churches, better laws, better government, and a better community will not result from his efforts.

Fourthly, there is now pending a matter that is of the most vital importance not only to the present members of the medical profession of our state, but to every citizen and taxpayer whatever may be his or her calling, and to the youth and future generations of Virginia and the South. All of us are aware that there was created by our last state legislature a commission on medical education. The purpose of this was to investigate the question of medical instruction in Virginia in all its phases and from every angle, securing all available information from any source whatever, and make recommendations upon this subject when its deliberations were completed.

This commission was especially instructed to consider the most unusual situation that now obtains: viz., the existence in Virginia of two inadequately state-supported medical schools and report upon the question of consolidating their resources and facilities for the purpose of creating thereby a training school for students of medicine, dentistry, and pharmacy more efficient, more economically conducted, and of greater value to the state than is possible under the present conditions. This commission has formulated and presented two reports, both of which are substantially identical except in the matter of location.

The commission is unanimous in its opinion that the schools should be consolidated and should be an integral part of our State University and be owned and wholly controlled by its Board of Visitors. The majority of this commission favored Richmond as the location, while the minority has reported its preference for Charlottesville. It is most unfortunate that a unanimous report could not have been presented and that the governing bodies of the two institutions are in entire disagreement on this one point. The lamentable fact now remains that the whole question has been made a political issue instead of being harmoniously settled upon its merits. But since this deplorable situation is before us, it is clearly our duty to face it.

The training of doctors is essentially a matter of which the doctor himself is the best judge. The advantages and disadvantages of the two locations are best known to those who have had to acquire this medical knowledge for themselves, and, having obtained it, have put it into practical application. One would

hardly consider a physician or a clergyman a competent advisor in the determination of the proper location for a training school for electrical engineers, nor would a pharmacist be an expert on the location of a law school. *A priori* it is equally true that a medical man is a better advisor in this case than one who has had to face none of his problems. As the representative body of the medical profession of our state, it seems to be the plain duty of this Society to take a stand in this matter in accordance with its convictions, having only in mind what is best for our state and our people. Since the prime function of our State University is to serve the people of the State of Virginia, it, of necessity, follows that those things that enable her to serve the greatest number in the highest degree must also be best for our University.

Fifthly, I wish to request your careful consideration of a resolution adopted by the Virginia State Board of Medical Examiners, a copy of which has been sent to the Executive Council. This resolution apprises the regularly licensed profession of an attempt on the part of the chiropractors to have enacted by the coming legislature, laws enabling them to engage in the practice of their cult without their being subject to the requirements of preliminary education and training on the fundamental branches exacted of regular practitioners of medicine. Such legislation will tend to make our state still more of a dumping ground for quacks and fakirs and can but result in serious harm to our people. I trust that this body will pass such resolutions and take such other measures as may help to avert this calamity.

Before I conclude these rambling and disconnected remarks, I wish to commend the work of the Secretary-Treasurer and Business Manager, and his most efficient assistant. I have been, for the past year, in almost daily touch with the executive offices and have observed their work with the highest degree of satisfaction. As in any new undertaking and especially in one so difficult as has been imposed upon our non-medical officers, things will arise that would have been better handled a little differently, so a few, very few, matters have required a little smoothing over. These rough places, however, have all disappeared and I am happy to tell you the office is running like a well oiled machine, as you will learn for yourselves from reports later.

And now let me again express to you my profound appreciation of the honor you conferred upon me in choosing me to guide this Society during the present year. I trust that the program, which has been arranged for you and the scientific exhibits to which I desire to invite your careful attention, may be carried out fully as planned. If so, I have no fear for the success of our meeting.

Professional Building.

HUMANISTIC DEVOTION.*

By STEPHEN HARNSBERGER, M. D., Warrenton, Va.

Hazlitt says "That the modern socialist stultifies all understanding but his own, and that which he conceives like his own." Now, it is not my intention to presume to tell you anything new about cancer, for so little is known about it that I do not wish my paper to appear as a near-glass reflecting nothing. But there is one thing we do know and it is just as intimately a part of our every-day existence as the air we breathe. We know that cancer is on the increase and we recognize the immeasurable suffering and distress which it causes whenever and wherever it elects to light. We also know that locally, and perchance inwardly, in numerous cases, it can be brought to bay by the early attack of quick judgment and election. We further know that delay means death; and we seem to feel that we all somehow or other want "death" staved off to the extremest verge of time. And yet, understanding all these things as most or all of us do, we complacently lavish time apparently unmindful of our own or the people's welfare. This is truth—and truth is said to be productive of utility and utility indicative of fidelity—it should be, we grant, but is it as it should be? Let your own conscience make the answer.

No man to do his duty can longer live in the silent, narrow lane. His head and heart must reach out and take in the atmosphere of progress and humanity. He must develop the power of transforming all that he sees, hears, feels, and thinks into a larger and better scope—live not for and to himself, but in the broader field of usefulness and happiness to all. The day of one idea and swivel thought has passed—the time is here when self should be lost in the world-feeling that health, justice,

*Read at the fifty-second annual meeting of the Medical Society of Virginia, in Lynchburg, October 18-21, 1921.

liberty and happiness is the right of every man, woman and child on the earth.

To vividly point out the unwarrantable, even tragic slowness with which people grasp the significance of plain eye and ear demonstrations of safety-first health facts, I beg to relate two case histories:

(1) M. J., male, about 65. Well educated, well informed, regularly read the newspapers, a live politician and an unusually successful business man. Had a small painless lump in his lower lip. Felt it, saw it every day. Had read and re-read the warnings constantly sent out to the public, yet it did not interest or impress him enough to cause him to use the simple precaution that was his sure and only safety. He is now reaping the reward that want of care and fore-thought inexorably imposes.

(2) Mrs. A., aged 82, at the time she called me for a painful enlargement on the inner aspect and just above her left ankle joint. Ulceration had set in and with it increasing pain. Diagnosis cancer. Eleven months previously she noticed a very small movable and painless lump at the point mentioned. Though of advanced age and uneducated, she was more intelligent from "native wit," as the sequel tells, than the doctor she consulted for advice. She at once suspected trouble, she told me, and went to see her family physician. He simply asked, "Does it pain you?" She said, "No." Then he replied, "If it don't pain you it will never result in a cancer." This doctor is known quite well—to many personally and to others through the medical press as an A. M., M. D. He is considered well informed generally, yet he had never grasped the simplest, most important, most certain and, perhaps, most frequent fore-warning symptom of cancer. Now, if the average qualified physician in this day of constant and liberal promulgation is ignorant of the fact that painless abnormalities are the hazardous sort, how great the task of enlightenment that still confronts us?

Naturally, the old lady did not relish losing a leg; but when I told her that every week she lived with the cancer the pains would increase in severity and the cancer itself would require more and more attention in the way of frequent dressings, she readily agreed to an operation. She said it was all right whether she passed away under the anesthetic or came out well; that the thought of dying did not trouble her at all. And may I not mention that it is usually the feeling of fear, anxiety and pain, or, more properly, the consequent acidosis that kills and not the extent or severity of the operation or the element of age. My long experience and observation at the bedside, remote from every kind of professional assistance, fully convinces me that age has very little, as a rule, to do with causing death in such circumstances. I have had patients of 100 and 103 with pneumonia, fractured femurs and other broken bones, etc., and they readily recovered. *Made and kept comfortable*, they improve and get out as well as do younger persons. Child-like doses frequently act like a charm. Keep this before them every time you visit them—it is a stabilizer that saves.

This old lady was sent to one of our leading hospitals for immediate high amputation, but was returned to me with the statement that she was too old and would not survive an operation. I then took her to another hospital and when the surgeon of my election came and saw her he said, "Why, doctor, this looks like deliberately putting her in the grave." I told him that I was not a surgeon but had done amputations and if he did not care to risk it, I would do it myself, as I was sure she would not die. He did the amputation and the patient lived for four years in perfect comfort, except for the loss of the leg.

These two cases are only two of thousands who foolishly "put off till tomorrow what should be done today." It is this same inadvertence that makes havoc of all things desirable.

We who are specially interested in the welfare of the people are at times disheartened by the apparent indifferent manner in which our time, money and knowledge are set at naught. Professional conscience, our safe convoy, urging and prodding us, is the only excuse we can allege for keeping eternally at it. Slang, though rightly abhorred, is now and then the real stuff in urging people to play a worthwhile fact. Denham says:

> "The sweetest cordial we receive, at last,
> Is conscience of our virtuous actions past."

So, my friends, let us confiscate, which translated, means let us not abandon but seize and appropriate to the public use every recognized discouraging and restraining obstacle.

"To the which my duties
Are with a most indissoluble tie
Forever knit. (Shak.)

It is hardly conceivable that people of this age should let carelessness or "the apathy of despair" in their natures lead them to leave events to take their own course. Even if these unwelcome incidents do not happen in their own persons, the pleasure of caring for the common good should and would compensate them to the fullest limit. "There is a spirit in man; and the inspiration of the Almighty giveth them understanding." (Job. 32:8.)

R. Angus Smith, writing to Florence Nightingale, July 7, 1859, said, "It seems to me that the greatest want among nurses is *devotion*. I use the word in a very wide sense, meaning that state of mind in which the current of desire is flowing toward one high end. This does not presuppose knowledge, but it very soon attains it." It is just this kind of sentiment of the heart that we must bring into this work of impressing our warnings by tongue and type. "They that sail in the middle can make no land on either side."

I invoke the earnest and intelligent cooperation of physicians and others to bring about and keep this increasingly important matter constantly before the people through some organized effort. The newspapers, always interested in whatever is best for the common good, will cheerfully and enthusiastically lend their valuable aid; and no one thing is of more genuine worth in promoting personal and social betterment than the part furthered by the press. This, in my opinion, is a cogent reason for taking newspaper men into membership in any collective body we may organize to fight cancer. They are usually intelligent, kind hearted, interested and active, and while they may not know much about diseased conditions, they do know more of other things about which we are more or less ignorant and which are quite necessary to succeed in this work that must flow perennially from the heart. It is the identity of heart interests—humanistic devotion—that is to culminate in the supreme good. We have to overcome apathy, ignorance, stinginess, and many other unforeseen obstacles are to be blocked or bumped out of the way. And, in this connection, it may not be burdensome to state that the greatest nonplussing circumstance or obviating fact is the prevailing educational methods of our higher civilization—the ultra refining of artistic feeling or aesthetic cultivation is taking the place of religious character. There is too much virtuosity and too little virtue.

Ignorance, like tuberculosis and cancer, is the curse of God. Knowledge, which alone can offset it, is the wing wherewith we fly to heaven, to paraphrase the words of another. To meet this intolerable situation will undo some of our service and comfort. Sacrifice means to devote with loss or suffering. The man or woman who does not surrender something for the good of others is never happy, because happiness does not consist in having and enjoying—the animal instinct—but in sharing with others, the spirit of love, which is devotion. Not for ourselves, but for others is the only ennobling compensation in this life and the surest lift to the eternal joy that awaits the resurrection. It not only fixes devotion and elevates character in this world—it gives the earnest faith that alone fits us for the final survey. I feel it, you feel it; then why not begin now to assure your own devotion and your neighbor's freedom from the umbrage of cancer?

"Thou, therefore, whom thou only canst redeem,
Their nature also to thy nature join
And be thyself men among men on earth." (Milton).

SOME OBSERVATIONS ON THE NATURE AND TREATMENT OF CANCER.*

By J. SHELTON HORSLEY, M. D., Richmond, Va.

The nature and treatment of cancer is a problem that seems always with us. In the minds of many there is impatience because the problem has not been completely solved and because progress in solving it has been slow. The exact cause of cancer has not been found, but much light has been thrown on the nature of cancer by modern laboratory research. The treatment, too, has improved by modifying the operation to suit the type of cancer and by the recognition of radio-active agencies, such as X-ray and radium, that have undoubtedly a distinct place in the treatment of certain forms of malignant tumors.

That the cause of cancer has never been found should be no source of confusion. As a matter of fact we know very little about the cause of anything. When the cause of a be-

*Read at the fifty-second annual meeting of the Medical Society of Virginia, in Lynchburg, October 18-21, 1921.

nign wart or mole is discovered the great step will have been made to unfolding the cause of cancer. Viewed in a wide way from a biological standpoint, there is no more reason to wonder at failure to discover the cause of cancer than the failure to discover the cause of life in any of its various manifestations. The discovery of the cause of disease by so-called specific bacteria does not account for the origin of the bacteria themselves. A growth on the tip of the nose, whether it be malignant or benign, is merely a part of the general biologic processes involved in growth of the body. We know, however, many laws and many more or less connected facts that aid in our conception of malignant tumors and in methods of attacking them.

The weight of opinion of the best authorities at present seems to be that cancer in human beings is not caused by any specific micro-organism. To be sure, there are isolated partisans of the general theory that cancer is caused by micro-organisms. Some of them are men of great ability. It is possible, too, that some such theory may eventually be proven. At present, the direct cause of cancer, like the direct cause of any benign tumor, is unknown.

Some of the recent laboratory work concerning the etiology of cancer has attracted much attention. Perhaps the most interesting that has appeared is by John W. Nuzum, of Chicago, who, in *Surgery, Gynecology and Obstetrics*, of August, 1921, presents experimental work in the transplantation of mouse cancer, in which he has isolated a minute micrococcus. This was done with careful and painstaking laboratory technic to prevent the probability of accidental contamination. Nuzum has succeeded in a few instances in causing typical cancer in a mouse by the injection of this micrococcus in pure culture without the presence of transplanted cancer cells. Injected along with cancer cells it seems greatly to accelerate the growth of these cells. The medium for the culture of this organism is human ascitic fluid containing a small bit of kidney or brain tissue. It may be mentioned that this culture medium has proved a source of considerable puzzlement to some observers who have attempted to isolate the cause of common colds, the organism causing acute anterior poliomyelitis, or the germ of influenza. Ascitic fluid and tissue culture media can not be sterilized by heat or chemicals, and often precipitate forms which show as minute round bodies. Such bodies, however, have none of the functions of bacteria and cannot transmit any disease.

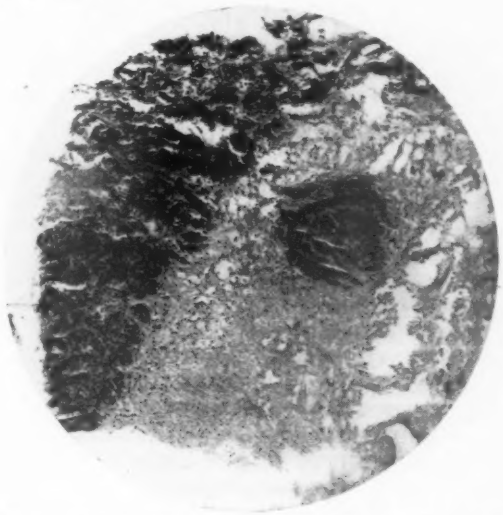

Fig. 1.—Photomicrograph of a tumor from the breast of a patient 41 years of age (Miss M.) The patient had noticed a small movable lump in her breast for several months. The physical signs seemed to show that the tumor was benign. Following the general rule to make frozen section of every breast tumor of a woman over 35, frozen section was done and a cancer was seen beginning at one end of what was apparently a benign tumor. Photomicrograph shows a distinct cancerous growth advancing into tissue that is benign. This is evidently an example of cancer developing in a previously benign tumor. (X-70).

Several years ago Peyton Rous, of the Rockefeller Institute, in New York, succeeded in producing definite sarcoma in chickens by an ultra-microscopic virus which was capable of passing through the finest filter.

The work of Dr. E. F. Smith, of the Agricultural Department, in the disease of plants called "crown gall," has attracted much attention. His experiments have been duplicated by others. I. Levin and M. Levine, in the *Journal of Cancer Research*, for July, 1920, give the results of their experiments with crown gall in different types of plants. They, like Smith, were able to reproduce a tumor by the injection of a pure culture of a bacillus which is called bacterium tumefaciens. This can be done with considerable regularity, but a growth produced in this way is not malignant and the relation between the benign crown gall of plants, which does not materially effect the life of the plant and which is caused by this bacillus, and the malignant

crown gall of plants, which is not caused by this bacillus, is similar to the relation between benign and malignant tumors in human beings.

It seems probable that if there is a relation between a micro-organism and cancer, it is due to the indirect effect of its irritation, such as we know is caused by chemical, mechanical, or thermic agents.

A. J. Ochsner, of Chicago, has earnestly espoused the theory of an infectious micro-organism in cancer. He has produced numerous statistics to show that cancer comes from some micro-organism found in filth and manure and he claims that, in countries where food is cooked or carefully washed, cancer of the gastro-intestinal tract is less frequent than in countries where raw food contaminated with manure is ingested. The obvious answer to this is that, if a micro-organism causing cancer is rather constantly associated with manure and filth, we would expect cancer of the colon and rectum to be very common and cancer of the stomach to be relatively rare, because the gastric juice destroys most germs. The facts, however, show just the reverse, for cancer of the stomach is more common than cancer of the colon.

We do know, however, that there are certain indirect factors exerting a very marked effect on the etiology of cancer. Chronic irritations have long been known to predispose to cancer. Certain kinds of irritation in the middle aged or the old seem more likely to cause cancer than would other kinds of irritations. The effect of tobacco smoke on the lips and tongue is well known; cancer of the skin following the wearing of a charcoal belt, cancer of the scrotum in chimney sweeps, cancer of workers in paraffin, and the experimental production of epithelial tumors by the injection of such materials as scarlet red, are all examples of the very prominent part that irritation has in cancer.

The effect of heredity has not been fully settled. While many authorities claim that heredity has no influence in the causation of cancer, the extensive experiments of Maud Slye, with mice, in which numerous generations of mice transmit cancer to their progeny, are exceedingly suggestive. It appears to be true that cancer, as we know it in human beings, is not contagious nor infectious.

In order to appreciate the effect of irritation on the etiology of cancer, let us briefly

Fig. 2.—Photomicrograph of the same area shown in Fig. 1, a higher magnification. (X 150).

consider the structure of cancer. A malignant tumor is essentially a growth of immature tissue cells. As a rule, the greater the immaturity, the more malignant is the cancer. In these immature cells the cycle of life has been restricted and the changes in the cell growth are hurried and incomplete. We can usually recognize cancer by the apparent immaturity of its cells, though the chief test is the invasion of tissue in which these cells do not normally belong. We rarely see true mitotic figures in normal tissue except in the testicle, but in cancer mitotic figures and particularly irregular mitotic figures which show rapid and incomplete processes of growth are common. As a rule, the greater the number of mitotic figures, the greater is the immaturity of cells and consequently the more malignant is the cancer. Even in the absence of mitotic figures irregularity of the nuclei in size and shape suggests immaturity and malignancy.

It is usually impossible to tell a malignant tumor by the examination of one or two cells. A number of cells must be examined and, more important still, the relation of masses of these cells to the neighboring tissue must be observed. The key-note to cancer growth is anarchy. Immature cells that grow without law or order, without regard to the neighboring tissues, constitute cancer.

We may see, then, the significance of the relation between irritation and cancer. Irri-

tation usually constitutes a slight injury and even a slight trauma must be repaired by the production of new immature cells. If these cells go through their normal cycle of life, they naturally become mature and the repair of the injury is accomplished. If, however, some of these immature cells never reach maturity, but produce other cells that also have an immature life cycle, we have cancer. Why the cancer cells do not follow the laws of growth of normal cells we do not know—but we are equally ignorant *why normal cells follow these laws.* There is evidently a very narrow dividing line between the normal and the abnormal growth of these immature cells, when they seem to stray from the straight and beaten path. If we could imagine a condition of the human body in which there was no injury or irritation of tissues and no necessity for repair, cancer in man would not occur.

Cancer varies greatly in type and in life history just as trees do. We may have a large oak or a small willow sapling and if it were necessary to cut down trees, we would fit our method of procedure to the size, kind, and number of trees. So in cancer we must adjust our therapy to the type of cancer. A superficial skin cancer may often be readily cured by a limited and simple operation, whereas, operation for cancer of the breast or stomach is a much more radical and formidable procedure. Even cancers of the same origin may sometimes with advantage be treated differently, depending upon the virulence and the stage of the growth.

A. C. Broders, of the Mayo Clinic, has done excellent work in the spinous cell type of squamous cancer. (Fig. 3.) He has found that when there are many "nests" or "pearls" the cancer has a relatively low degree of malignancy, but when there are few or no pearls the malignancy is very great. He has made four grades of this squamous cell type of cancer. The practical bearing of his work is that when cells of this type of cancer approximate closely to maturity by showing many pearls, the operation need not be so radical as when the pearls are few in number. This is but one of many examples where the knowledge of pathology of tissues is of great practical aid to surgeons.

As to the treatment of cancer, it can be summed up in the admonition of early removal. This removal must be intelligently

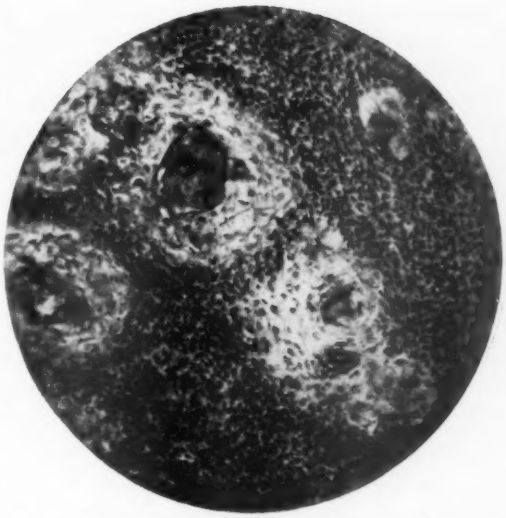

Fig. 3.—Photomicrograph of a spinous cell type of squamous cancer. The picture shows a number of "pearls" or "nests" which are characteristic of a milder type of cancer. These show a tendency to maturity. The more "pearls" or "nests" in a spinous cell type of cancer, the less the malignancy. A. C. Broders has called attention to this. (X 125).

undertaken. As Bloodgood has so often said, the earlier a diagnosis of cancer is made the more difficult it is, but it is infinitely more important for the patient that an early diagnosis be made and a proper operation done than for the growth to be watched until the diagnosis is obvious but therapy impossible. Cancer of every kind is originally local in origin. There is a very small percentage of cancer, possibly not greater than five per cent., in which the growth is so malignant and the development so rapid that it is practically impossible to extirpate the cancer sufficiently early for a cure. In more than ninety per cent. of cancers an early and intelligently applied radical operation should produce a cure in the great majority of instances. The problem for the medical profession and the public to solve is securing an early extirpation for every malignant growth.

This does not mean that an extensive mutilating operation should be done on every suspicion, but it does mean that every growth should be seriously considered and, if necessary, a frozen section made to determine its nature. An incision into a suspected malignant growth should never be made unless the surgeon is prepared to follow a diagnosis of cancer by an immediate operation. If the incision is made and the tumor proves cancerous, a delay of

even a few hours may cause implantation of the cancer cells into the fresh wound. The fact that cancer is nearly always painless in the earlier stages often causes neglect in treatment.

As we know that many types of cancer travel by the lymphatic channels, the importance of warning the patient to refrain from massage of the suspected growth or rubbing on a liniment is very obvious. Such procedures naturally tend to promote early and diffuse metastases. I have seen more than one inoperable cancer of the breast where the rapid growth was doubtless due to osteopathic or chiropractic manipulation or to the rubbing on of a liniment to absorb the lump.

In treating cancer it is essential for the surgeon to be at least somewhat acquainted with its pathology. A squamous cell cancer can often be satisfactorily cured by a comparatively limited operation, particularly when the growth is excised with a sharp electric cautery. Cancer of the breast and cancer of the lip of the more malignant types require a more radical operation. The principle of block dissection should be used wherever possible and the cancer should be manipulated no more than is necessary to accomplish the dissection. In this way the original site of the cancer with its extensions is removed in one mass. The wound should be frequently flushed with salt solution to wash away any cancerous cells that may have been extruded from the cancerous tissue during the dissection. Drainage should always be used in extensive operations for cancer as the presence of the draining tube promotes an outpouring of the lymph which tends to carry the cancerous cells through the drainage tube instead of absorbing them through the lymphatic channels.

There are many pathological facts that are of great aid in the treatment of cancer. Extensive basal cell cancer of the face, for instance, is exceedingly difficult to cure by the ordinary methods of excision. (Fig. 4). This type of cancer does not mestastasize, though the cells are smaller than the spinous cell type and are exposed to the lymphatics in the same way as the spinous cells are. It seems logical to account for this failure to mestastasize by the assumption that the basal cell cancer cannot grow unless it destroys the natural resistance of the tissue to its cells. This seems to be accomplished only in the immediate proximity of this cancer. With these things in mind, I have, in two very extensive basal cell cancers of the face that had destroyed a considerable portion of the bones of the face and had existed from ten to twenty years, transplanted flaps of skin and subcutaneous tissue from a portion of the body at some distance from the cancerous growth. The cancer was excised with the electric cautery and the flap, usually from the chest, was outlined with a long pedicle at the time of the excision of the cancer. The flap was gradually dissected up every few days so as to develop the blood supply in the pedicle. As soon as the slough caused by the cautery had separated from the site of the cancer, the flap was transplanted and fitted snugly in position. One of these patients who had been operated on by several excellent surgeons and who had had radium and other treatments in both competent and incompetent hands, has apparently been cured by this procedure. At least there has been no recurrence of the growth for a period of about eighteen months. The other patient, with an equally extensive affection, has had no recurrence where the raw surface of the flap fitted to the raw surface left by the excision, but in one area of the wound where this was mechanically impossible, there was recurrence. Subsequent operations have rendered

Fig. 4.—Photomicrograph of a basal cell cancer. (X 155). This cancer arises from the deeper layers of the skin; it is a so-called "rodent ulcer." While it does not metastasize, but grows from a common center, it will destroy life by continuous erosion. Unlike the spinuous cell type, it seems incapable in producing metastases in the lymphatic glands. (See text).

the patient free from recurrence for the last two months.

The benefits of X-ray and radium in the treatment of cancer are marked in many cases. Too much should not be expected of them and every cancer that can be removed by a properly performed operation should be excised, unless the physical condition of the patient forbids. In certain types of malignant growth, as in lympho-sarcoma where surgery is utterly hopeless, radium in large doses is exceedingly beneficial and occasionally seems to be curative. Cancer of the cervix uteri I now treat entirely by radium, as it appears to give as satisfactory results as a radical operation and is much less dangerous. In cancers of the body of the uterus, operation should always be done as radium appears to have but little effect here. This may be due to the fact that radium is particularly destructive to endothelial cells and in the cervix probably blocks the extension of the cancer by destroying the lymphatics. Whether this is a correct explanation or not, it is certainly true that radium is effective in cancer of the cervix where operation is less effective, and that radium does but little good in cancer of the body of the uterus where operation is highly satisfactory. In certain types of cancer, especially cancer of the breast, intensive X-ray treatment two or three days before operation, seems to be beneficial. I believe that this is better than giving routine post-operative X-ray treatment, which, in my experience, has not been satisfactory.

PUBLIC HEALTH AND THE SCHOOL.*

By ENNION G. WILLIAMS, M. D., Richmond, Va.
State Health Commissioner.

I share with every specialist the belief that his particular line of effort is the one in which the most notable recent advances have been made; and this is a most excusable delusion, for the past twenty years have witnessed medical developments far beyond the wildest surmise of past generations.

But let us look calmly at the development of preventive medicine and endeavor to recall what it meant when most of us were students, and I am sure that even the most bigoted partizan of his own particular line will admit that the change has been astounding. A generation ago, of all branches of our profession, that which dealt with prevention was the least understood and received the least consideration. It is now the best known and its appreciation is by no means confined to members of our profession.

The discoveries of Pasteur opened an empire greater than the one which Columbus gave to the world. He demonstrated beyond the shadow of a doubt how diseases are caused and how they may be transmitted. He predicted the possibility of making all communicable diseases to disappear from the earth. The world was slow to comprehend the importance of his discoveries and has been tardy in using the practical knowledge that has been a consequent of his findings. This should not cause surprise or induce disappointment, because the possibilities of preventive medicine are so great that people who disbelieve may easily be pardoned.

Public health efforts to be successful must have the support of the public. Health officers are impotent in the face of adverse public sentiment. Morbidity and mortality statistics are not interesting reading for the general public, and unfortunately the efforts of health officers may be obtained only from such compilations.

The private practitioner can be appraised more specifically. If he is successful, grateful patients sound his praises; if he is a failure, the headstones in the cemeteries are mute witnesses to his lack of success. His is a positive branch and his results are positive. Preventive medicine is, as its name implies, negative; and those who practice its specialty are gauged by the curious who study tables, ignored by the many who are neither friendly nor unfriendly, or bitterly opposed by the densely ignorant who unfortunately form an appreciable portion of the body politic everywhere.

As a consequence of this ignorance or lack of interest, the prerequisite for the development of public health work must be education. The people must be made to understand that communicable diseases can be made incommunicable through individual or community effort, that quarantine is a feeble makeshift and would not be necessary if an intelligent public could be made to understand how to care for itself. When this intelligence is created, when this education is effected, two results have been accomplished. The people who

*Read at the fifty-second annual meeting of the Medical Society of Virginia, in Lynchburg, October 18-21, 1921.

understand will want to care for themselves; and, knowing to what extent public effort is needed for individual protection, they will be anxious to have the activities of their State Health Department widened and to have local health agencies working under its direction.

Public opposition to the extension of public health efforts, or public inertia, must not be too severely condemned. We must realize that prior to this generation little or nothing was known about the causes of communicable diseases or their prevention. A health officer was supposed to be one who would endeavor to check a prevailing epidemic; the idea that he was to *prevent* an epidemic did not occur. If the health officer should promptly quarantine or isolate the victims of the epidemic he would, in the popular estimation, have done all that mortal man could have been expected to do.

This statement seems today grotesque, but only the youngest men in this room are too young to remember when this conception of public health work was not the popular one. As a natural consequence of that conception, health work was left entirely to physicians; and, since epidemics were fortunately of comparative infrequency, health officers were employed on part time or per diem basis.

The event which changed or did more than any other thing to change public opinion in this field was the amazing result of the work of Gorgas, at Panama. To take the most pestilential region of the world, with an annual death rate of one in five for its total population, and convert it into a health resort with a death rate twenty-five per cent less than the death rate for continental United States, to cut the local death rate by nineteen-twentieths—that was an achievement so miraculous that it served to focalize and crystallize attention.

Virginia, I am glad to say, was one of the first States to appreciate the full possibilities that had been demonstrated and to realize its obligations to its people. In 1908, the State Health Department was reorganized and its appropriation increased from $4,000 to $40,000 and its officers were put on full time rather than part time duties. The doctors of Virginia, with comparatively few exceptions, showed at once a disposition to co-operate. Through their help the department was enabled to ascertain with relative accuracy the number and distribution of cases of communicable diseases, and consequently could inaugurate intelligently a widespread campaign of general education, inculcating newly discovered facts concerning the causes of diseases and methods of prevention.

One of the first developments was the establishment of a laboratory to aid doctors in the diagnoses of communicable diseases. This was a satisfactory experiment which has developed into a large and increasingly important division of the health department.

Our first year's investigations led us to believe that there had been not less than 14,500 cases of typhoid fever in Virginia during the twelve months. It was known to every man who had paid the least attention to preventive medicine that typhoid was among the easily preventable diseases; and, therefore, we made our drive on typhoid and its companions in the filth-borne class. In 1920 there were but 267 deaths from typhoid in all Virginia; and it is safe to say that the total of typhoid cases fell below 3,000—our reported cases were far below that number.

I shall not occupy your time with a description of each development of health activity in the State department. Thanks to the engineering division, there was not during the past year a single outbreak of typhoid that could be traced to a public water supply. Thanks to the tuberculosis work, the death rate from the white plague is steadily declining in Virginia. Here I might pay this distinct compliment to Virginia: Our State is one of the most liberal in the Union in relation to tuberculosis work, and it has the largest negro sanatorium in the country.

Efforts were made to reduce the cost of diphtheria antitoxin and other biological products and make them more available to physicians and their patients.

We then see that in the early years of the Health Department the activities were devoted largely to prevention of disease. In 1914 we carried on an incidental piece of work that was destined to mark an epoch in public health and open up a new area with an unlimited field of activity. We were to realize that prevention was only one branch of the public health and that promotion of the standard of health was another obligation the Government no less owed to the people.

In 1914 Professor W. H. Heck, holding the chair of Education at the University of Vir-

ginia, asked us to aid in determining the physical condition of the children in one of the Virginia counties. Orange was selected, because it offered a central location and a more or less typical territory. Dr. Roy K. Flannagan was placed in charge of the work, and he was assisted by representatives of the International Health Board.

I will summarize these findings: The school population of Orange was recorded as 4,008, but the figures furnished by the teachers indicated that only 2,609 children could answer the roll call when all were present. Seventy per cent of the white children and sixty per cent of the colored children who were enrolled were present when the examinations were made.

This study disclosed less eye troubles in village or town schools where window arrangements were better than in the strictly rural schools with their cross lights, the former showing 14.2 per cent for white and colored combined, and the latter giving 27 per cent for white children and 23 per cent. for colored.

On the other hand, curiously enough, children living in villages showed a higher percentage of diseased teeth than those in more rural sections. The percentage in the villages reached the startling figure of 86. The strictly rural white schools showed 47 per cent of the white children with defective teeth and 28 per cent for the colored. Negro children, however, showed a much higher percentage of glandular troubles. One-fourth of the colored children had enlarged neck glands; less than one-eighth of the white children were so affected.

Hearing defects were found to be more prevalent in the village schools, where the percentage was 12.5; in the rural schools it was only 4.5. Enlarged tonsils were found to be more numerous with the negroes, who had a percentage of 40 against 30.5 for white children. Adenoids were much less apparent in the graded white schools, the percentage being 26 as contrasted with 40 in the one-room white schools and 37.5 in the colored schools.

A distressing feature of this examination was the disclosure that so many children were evidently undernourished. Orange County has such climatic and topographical advantages that it might reasonably have been presumed to be unusually healthful; yet 25 per cent of the white children and 37.5 of the colored were marked below par.

The report dealt at length with the need for efficient health organizations in the country districts, for better school houses; but it made most evident the need for stronger children, with rosy cheeks and bright eyes instead of anemia and vacuity. This survey created more than State interest. It was the first of its kind and it attracted national attention. The report was published by the United States Department of Education.

In 1915 six more counties were surveyed, and defects were found in the collowing percentage: Eyes, 23; hearing, 3.4; tonsils, 50; adenoids, 37.5; teeth, 62.5; glands, 40; anemia, 26.7.

To those of you who served as members of examining boards during the process of the selective draft law or who have read the reports of the surgeons-general of the army and navy, these figures will seem to be, as they really are, an accurate prophecy. What the draft board later revealed about the young men of the country, we in the State Health Department already knew about the children of several Virginia counties.

It was that knowledge that led Col. Junius F. West, in 1916, a member of the State Senate, lately nominated to be Lieutenant-Governor, to introduce a law requiring the physical inspection of school children and making it incumbent upon the teachers to qualify themselves for this duty and also to fit themselves to teach simple hygiene and sanitation. In 1920 this law was amended and improved, so now certain corrective work can receive financial aid from the State.

It is my chief purpose in this paper to speak of public health and the schools. I have briefly reviewed the general development of the work in the State, and will now try to show just the part that the schools are to play in carrying out the aims and purposes of public health endeavors. We have spoken of how the health work as a public activity must wait on public sentiment and this in turn upon the education of the individuals.

The law advocated by Col. West has provided the machinery to carry on through the public schools the systematic course of instruction in the principles of prevention. This course is to be approved by both the State Board of Health and the State Board of Education.

In addition to the regular curriculum, a

scheme of Health Leagues has been organized in many of the schools whereby a spirit of rivalry and competition in principles of personal hygiene are taught by actual practice of them. Again, in virtually every school room of the State, there is posted a placard containing two rules which, if followed, will prevent that large group of diseases carried by the secretions of the mouth and nose. In this group are measles, whooping cough, diphtheria and scarlet fever.

For many years health officers have tried to control these by quarantine, but with little success. The reason is plain. Measles and whooping cough are most communicable in the incubation period, or before the diseases are recognized. Diphtheria and scarlet fever have more mild and unrecognized cases and carriers than clinical cases. We see how futile it is to control them by isolating only the recognized cases, although, of course, isolation helps and should be continued. We control the diseases carried by secretions of the mouth and nose on the same general plan as typhoid, or diseases carried by excreta are controlled. They are prevented by considering all human excreta as potentially dangerous and safely disposing of it. We must control all diseases carried by secretions of the mouth by considering all mouth secretions as potentially dangerous and must prevent their transmission from one mouth to another. This is done on the same basis as the prevention of accidents in the very successful "Safety First" movement. To reduce the chances, the incidence is proportionately reduced. We can see that the diseases conveyed by secretions of the mouth can be controlled by teachers far more successfully than they can by health officers and doctors.

In that other division of health work, the promotion of the standard of health, the teacher and the school have a great field of usefulness. Last year the teachers and nurses inspected more than 127,000 school children, yielding results somewhat similar to those obtained in the previous inspections to which I have referred.

I would not have you think that this physical inspection required of the teachers is a medical examination. It is merely a "looking over," to determine defects plainly apparent. It is a testing of the eyes by Snellen's Chart; of the hearing by the ticking of a watch or a whisper; looking in the mouth for defective teeth; weighing and measuring the child and comparing the figures with a standard chart; and some observation of the general appearance. Any teacher of average intelligence and slight instruction can easily determine glaring defects. There is only one bit of advice the teacher or the school nurse is permitted to give. If she discovers defects, she must advise the parent to consult a physician and find out what is the matter with the child. In the rural districts the doctors are realizing that these physical inspections are not, as some of them at first thought, an invasion of their field. I do not wish to be considered as criticising even those who held that opinion, because they were justified in protesting when they believed that incompetent laymen were attempting to give medical advice, but that misunderstanding should no longer exist.

We come now to the most serious problem of all. How are we to have corrected this vast number of physical defects? It is a conservative estimate to say that 20 per cent of the funds spent on education is wasted because of physically defective children. Children repeat grades year after year—hold back the normal children—waste the time, energy and nerves of the teachers—are handicapped themselves from receiving an education—and are liable to more serious physical ailments in later life. These defects and handicaps can be corrected or removed. The medical profession has the knowledge and skill. To get together we must steer between two dangers. The one is failure to give relief and the other the encroachment by the State upon the legitimate prerogative of the licensed practitioner.

So far, we have been conducting clinics in the closest co-operation with the local doctors and dentists. In the last six months, clinics have been held in eight counties; over four hundred children have been operated upon for tonsils and adenoids. We do not encourage clinics even partially supported by the public except where men competent to perform the work cannot be secured by the parents of the children; and to relieve the public clinics of an eleemosynary character, those who attend them have to pay for the services of the clinician.

The West law does not provide funds sufficient for free medicine or surgery; and I would not advocate that it do so. However, it is a reflection both upon our Government and

upon the profession, to permit the continuance of the situation revealed by school inspection and by the draft. I feel confident that those representing the Government and those representing our profession, inspired by the broad spirit of humanity, can get together and remove these burdens and handicaps from these children and future citizens.

A sound mind in a sound body is a truism older than the Christian era. We are today trying to make it something more than a phrase. To ignore the body while training the mind is a relapse to the Middle Ages. I am proud that Virginia is in the fore-front of the States that are doing this work for their young citizens. Furthermore, I entertain the profound and most gratifying conviction that this wise departure, this most excellent effort, will have the hearty support and the unstinted co-operation of the eminent physicians who form the Medical Society of Virginia.

MEDICAL EDUCATION IN VIRGINIA.*

By STUART McGUIRE, M. D., Richmond, Va.

The agitation of the question of the consolidation of the two State supported medical schools in Virginia has been due to two facts, first to the shortage of physicians, dentists and pharmacists in the State, and second, to the obvious inability for either the Medical College of Virginia or the Medical Department of the University of Virginia to improve and expand so as to meet the requirements of the future, unless one or the other of them received the united support of the professions and the undivided financial aid of the Legislature.

Doctors, dentists and pharmacists are not luxuries but necessities, and the fact that there is today a lack of a sufficient number of each in this State is officially testified to by the Commissioner of Health, and is a matter of common general knowledge.

Unless some radical change is made in our educational system, the situation will become more acute. The two State supported schools cannot be counted on to do in the future what they have done in the past. Owing to steadily increasing requirements, they have reached the limits of their financial ability, and in place of improving and expanding they are now struggling for existence. The Medical College of Virginia, despite recent additional appropriations from the Legislature, is barely able to retain its Class A rating, and the straits of the Medical Department of the University of Virginia are shown by the fact that thousands of dollars had recently to be raised by solicitations among its teachers, students and alumni in order to enable it temporarily to carry on its present work.

Medical education is no longer profitable. It has ceased to be a business venture and has become a public philanthropy, which must be supported by private benefactions or State appropriations. Virginia cannot expect other States to do for her what it is clearly her duty to do for herself. She must in justice to her people see that they are provided with an adequate number of well qualified physicians, dentists and pharmacists, and obviously the most economical and effective way to do this is by maintaining one large first class school.

Governor Westmoreland Davis, in his message to the last General Assembly, said in part:

"There are two State aided medical schools in Virginia. There should be, as in other States, but one. The Medical College of Virginia receives $70,000 each year and the University of Virginia $96,175 each year for the biennium period.

"The best thought to be had upon the subject is that these State aided institutions operate to their own detriment in the same sphere of usefulness and appropriations made by the State should be to one institution rather than be divided between the two. I am impressed from the standpoint of efficiency and economy of administration that it would be well for the Legislature to take cognizance of the condition to which I have referred and, that in aid of the adoption by the State of a broad constructive policy in the selection of a single medical school which will alone receive the support of the State, a committee of nine be authorized to investigate the advisability of having one State aided medical school in Virginia rather than two, and assisted by trained experts in medical education without undue expense to the State, to study medical education in Virginia and upon the basis of such study and after all the facts and conditions are understood to make to the Governor for transmission to the General Assembly such recommendations as they think wise to the end that medical education in Virginia be unified and the whole situation be made as efficient and logical as possible."

As a result of this message the Legislature passed a bill creating a Commission on Medical Education in Virginia and appropriated a sum of $2,000 to defray the expense of its work.

The Commission organized on June 20, 1920. Its members personally inspected the buildings and equipments of the Medical Department of

*Read before the fifty-second annual meeting of the Medical Society of Virginia, in Lynchburg, October 18-21, 1921.

the University of Virginia, at Charlottesville, and of the Medical College of Virginia, at Richmond. It secured the advice of outside experts, learned the experience of other States who had had the same problem to deal with, and ascertained the opinions of members of the Virginia State Board of Health and State Board of Medical Examiners. At a meeting of the Commission on Medical Education in Virginia in Richmond, on February 3, 1921, the following extracts from a letter written by Dr. Henry S. Pritchett, President of the Carnegie Foundation, were unanimously adopted as expressing the views of the Commission:

1. At the present time the State of Virginia is subsidizing two medical schools, one, in Charlottesville, the other, the Medical College of Virginia, in Richmond. This situation is a reproach to the medical intelligence of the State and an injustice to the people of Virginia. It should cease as soon as possible.

2. Neither of these medical schools, between which the State support is divided, has at present the resources to conduct a modern medical school adequate to meet the needs of the State, even upon an economical and modest basis.

3. Any medical school in Virginia, supported in whole or in part by the State, should be a part of the University of Virginia and under the control and direction of its governing board and president.

4. Although a few divided medical schools still exist, medical opinion is practically unanimous in the conclusion that to offer the first two years of a medical curriculum in one place and the last two years in another is not only a waste of funds, but results in a diminution of the effectiveness of the school as a whole. A medical school, half of which is in Charlottesville and the other half in Richmond, is no solution of the problem of medical education in Virginia.

5. If, therefore, the State of Virginia is to support medical education at all, such support should be given to a single medical school situated either in Charlottesville or in Richmond, and in either case, under the direction of the University of Virginia.

The passage of these resolutions left but two questions to be settled by the Commission, namely, the location of the school and the terms and conditions of consolidation.

The Commission at its last meeting, by a majority vote, recommended Richmond as the future home of the proposed single State aided medical school. The reasons which influenced the decision in favor of Richmond rather than Charlottesville may be summarized here as follows:

1. Population sufficient to furnish adequate clinical material.

2. Residence of specialists available as clinical teachers.

3. Location of State owned college and hospital buildings.

4. Proximity of headquarters of State and city boards of health and other related State and city activities.

5. Opportunity to teach dentistry and pharmacy in addition to medicine.

6. Probability of new sources of financial support.

7. Occupation of field which, if left vacant, would lead to future competition.

The final conclusions of the Commission were as follows:

1. There should be one State supported medical school.

2. It should teach medicine, dentistry and pharmacy.

3. It should be located in Richmond.

4. This school should be formed by the merger of the Medical College of Virginia with the Medical Department of the University of Virginia, through the unconditional transfer of the property of the Medical College of Virginia, subject only to the existing liabilities.

5. The medical school so formed should be a bona fide department of the University of Virginia, having the same academic relationship to the University of Virginia as that borne by the present Department of Medicine, and the task of organizing this new medical school in all its details should be entrusted to the authorities of the University of Virginia.

The fact has been emphasized by the advocates of Charlottesville that while the Commission was unanimous in recommending that there should be but one State supported medical school and that this school should be operated as the medical department of the University of Virginia, the Commission was not unanimous as to where the school should be located. It must be remembered, however, that this is a democratic country and that the majority is supposed to rule. The Commission was composed of carefully selected men, whose honesty and intelligence cannot be questioned and the decision of the majority of this body can no more be lightly set aside than can the decision of the Supreme Court, from which there is no appeal, although its verdict is often reached by a close vote.

The Board of Visitors of the Medical College of Virginia has unanimously agreed to accept the terms and conditions of the report, but the Board of Visitors of the University of Vir-

ginia has declined to do so, and, as a result, under the provision of the law, the Governor must transmit the report of the Commission to the General Assembly at its next regular session, with such recommendations as he may see fit to make. The refusal of the Board of Visitors of the University of Virginia to accept or modify the report of the Commission places the burden of proof for the wisdom of its action on that body. The responsibility also rests on it for throwing the question of medical education into the political arena where it promises to be an issue which will rival prohibition and woman suffrage in the interest, and perhaps, in the bitterness it will create.

Until the Commission on Medical Education in Virginia adopted its final report, I tried to keep an open mind and to refrain from any partizan action. After the work of the Commission was concluded I have felt free to meet propaganda with propaganda and most of you are familiar with the activities of my associates and myself. I have no excuses or apologies to offer for what I have done, for I am conscious of being actuated by no personal motives or local interests but am convinced I am availing myself of the greatest opportunity that will ever be offered me to be of service to my profession and to the people of my State. It is perhaps unfortunate that a matter of controversy should be introduced into the scientific session of our Society. I can only say that the initiation did not come from me, but from a representative of the University of Virginia.

Up to this point I have largely confined myself to an effort to prove that there should be but one medical school in Virginia, a fact which is emphasized by Governor Westmoreland Davis in his message to the Legislature, is endorsed by both the majority and minority report of the Commission, and is substantiated by Mr. Flexner, Dr. Pritchett, Dr. Bevan, and every expert on medical education who has testified on the subject. I have done this because my greatest fear is that the Legislature, which has the final determination of the question, may in a spirit of compromise continue to divide the support of the State between the two existing schools, which in my opinion would be the greatest calamity that could possibly befall medical education in Virginia. Although we may divide on the question of the location of the school, let us unite in the demand that there shall be but one.

In the short space that remains to me because of the time limit of this paper, I cannot even summarize the argument in favor of Richmond and opposed to Charlottesville as the location of the proposed school. Most of my audience are already fairly well informed on the subject. If such is not the case, it is no fault of those who advocate opposing views. I can only attempt first to combat the sentiment which has been created especially in the minds of the non-medical graduates of the University, against what has been cleverly and most misleadingly termed the brutal dismemberment of their alma mater. It must be recalled that only eight years ago the President of the University, Dr. E. A. Alderman, the Dean of the Medical Department, Dr. R. H. Whitehead, and the Board of Visitors of the University, all earnestly advocated the very plan which is now proposed and it only failed of accomplishment because of lack of funds to put it into effect. Surely sentiment cannot be relied on if eight years ago it favored a movement under the term "expansion" and now condems it under the term "brutal dismemberment."

It must further be recalled that if the recommendations of the Commission are carried into effect nothing will be taken away from the University, but much will be added both of material assets and opportunity for usefulness. Finally, it must again be stated that the new school will be absolutely under the control and direction of the authorities of the University.

The University of Virginia is now advocating and establishing extension courses in other lines of work in various parts of the State. Certainly it is not consistent in claiming it cannot conduct a medical department in Richmond without losing its integrity. Surely it should not limit its work to Charlottesville, but take the broad view of the Dean of the University of Tennessee, who said: "The campus of our State University, The University of Tennessee, is the State of Tennessee."

Let us next see what other State Universities have done when faced with the same problem we have in Virginia today.

It has been found that there are twenty-one State Universities which give complete medical courses. Eight of these have separated the entire medical school from the University and located it in a large city, and four have

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split their courses, teaching the first two years at the Universities and the last two years in large cities. Of the remaining nine Universities, five are located in large cities, which leaves only four that are attempting to teach medicine in small towns. In a discussion which resulted in the transfer of the Medical Department of the University of Colorado, from Boulder to Denver, Dr. Charles M. Meader said in part:

"It seems fair to conclude from the facts given that no institution except a State University is able, or at least is attempting, to give its clinical years in a city under 100,000 population; that twelve State Universities have preferred to separate their medical schools by distances varying from 10 to 300 miles from their campus in order to gain clinical facilities, compared with only four which have attempted to carry clinical teaching in a small city in order to retain the school on the campus. The dates of organization of these four schools are as follows: Virginia, 1827; Michigan, 1850; Vermont, 1853; Iowa, 1869—dates when medical education differed materially from that of the present day and the competition of other good schools was far less. Of the four, Michigan and Iowa only are strong schools. It is believed that it may be fairly held that if a decision must be made between University atmosphere on the one hand and extensive teaching facilities on the other, the experience of other schools is everwhelming that a medical school can reach a high standard of excellence without the former, but cannot rise above mediocrity without the latter."

The advocates of Charlottesville in their arguments ignore the result of the experience of twelve State Universities who have found it wise to separate their medical schools from the campus of the Universities and establish them in large cities, and base their contention on the fact that Michigan and Iowa have been successful in conducting medical schools at the seat of universities in small towns practically no larger than Charlottesville. They claim that Virginia can do what other States have done, but as mortifying as it must be to confess it, this is not true. Virginia, compared with Michigan and Iowa, is financially a poor State and cannot afford to appropriate the money that they have found necessary to spend in order to teach medicine, dentistry and pharmacy under artificial conditions. This is at once apparent when figures are considered.

Michigan has spent $2,688,500 on its medical buildings and is now engaged in construction which will cost $1,500,000 more. During last year it spent $288,414.95 on its school of Medicine, $88,948.92 on its school of Dentistry, $10,792.86 on its school of Pharmacy, and $269,445.95 on its clinical hospitals; or a total annual expenditure of $657,602.68 for medical education.

Iowa has spent over $1,000,000 on its medical buildings. During last year it spent roughly $200,000 on its school of Medicine, $100,000 on its school of Dentistry, $16,000 on its school of Pharmacy, and $700,000 on its clinical hospital: or a total annual expenditure of $1,460,000 for medical education.

The absurdity of Virginia attempting to follow the methods of Michigan and Iowa is apparent; the necessity of adopting the plan in practice in the majority of other States is obvious. The school must be located where clinical teachers are available and where clinical material is cheap and abundant.

Finally, the evidence of expert testimony. There are three national organizations in the United States which are recognized as authorities on questions of medical education; they are the Rockefeller Foundation, the Carnegie Foundation and the Council on Medical Education of the American Medical Association. Naturally, one of the first acts of the Commission on Medical Education in Virginia was to endeavor to secure their assistance and advice. Unfortunately, all three of these bodies, for one reason or other, declined to express an opinion at a time when the weight of their authority would have been almost a determining factor in the question at issue. Later, when the work of the Commission was virtually completed and the minds of its members practically made up, all three of these bodies unofficially took sides. Mr. Abraham Flexner, Secretary of the Rockefeller Foundation, came out favoring Charlottesville, and Dr. Henry S. Pritchett, President of the Carnegie Foundation, and Dr. Arthur D. Bevan, Chairman of the Council on Medical Education of the American Medical Association, came out favoring Richmond.

Naturally, the advocates of Charlottesville persistently quote the opinion of Mr. Flexner. No one questions his honesty, intelligence and experience. He is undoubtedly one of the most famous experts on medical education in this country, but he is an idealist and a theorist, and he is one of the group of men who by radical and extreme measures have so rapidly advanced the standard of medical education in the United States as to produce the present shortage of doctors which threatens to become

even more serious in the future. Besides, Mr. Flexner's opinion is a qualified one and is based on the provision which he expresses in his brief as follows: "There must be legislation such as has already been adopted in Iowa and in Michigan for the purpose of facilitating the flow of clinical material to the University hospital." As has already been shown, this would cost a price that is prohibitive in the present state of the finances of Virginia.

The other two experts on medical education, whose names and positions have previously been stated, advocate Richmond. They are authorities equally as eminent as Mr. Flexner and are regarded by many as men of more practical minds. Dr. Henry S. Pritchett, President of the Carnegie Foundation, says:

"The opportunity of the University of Virginia to serve the cause of medical education and to take a commanding position in the training of medical practitioners in the region in which it stands, lies in the development of its medical school in the City of Richmond. In my opinion, this development can be had without the sacrifice of scientific relations with the University or of scholastic ideals."

Dr. Arthur D. Bevan, Chairman of the Council on Medical Education, says:

"My own point of view is that in determining the location of a medical school, the question of securing the proper amount of teaching material is of more importance than the question of the proximity of the medical school to the other departments of the University."

But after all, these outside experts do not know as much about the needs and conditions in Virginia and how they can be met with the existing resources as do the men who live and practice in the State, and the physicians, dentists and pharmacists of Virginia have expressed their opinion in no uncertain voice. A referendum vote recently taken resulted to date as follows:

	Favoring Richmond	Favoring Charlottesville
Physicians	1,461	322
Dentists	559	19
Pharmacists	984	90
Total	3,004	431

The State Pharmaceutical Association, at its last annual meeting, unanimously passed a resolution endorsing Richmond as the location of the proposed single State supported school.

The State Dental Association, recently at its annual meeting, unanimously passed a similar resolution.

The State Medical Society, while it may not be a unit, should take like action by a large majority vote at this meeting. The question is now one of practical politics and a knowledge of the position of the three official organizations representing the pharmacists, dentists and physicians of the State, as well as the expression of the views of individual members to their representatives in the Legislature, should have a potent influence in the final action of the General Assembly of Virginia.

THE RELATION OF MEDICINE TO LAW.*

By JUDGE F. B. HUTTON, Abingdon, Va.

The subject assigned me this evening is The Relation of Medicine to Law.

I regard it as a great compliment to me that I should be invited to address this association of physicians. I was reared in a doctor's shop, my father was a physician, I have a brother who is a physician, and a son who is a physician, and I would have been a physician myself had my father permitted me. I have always had the idea that I might have been a good one. There is no profession for whose members as a body I have a higher regard, and for many of its members, individually, I have even a higher regard than I have for the profession as a class. In my judgment, next to the minister, there is no man who should and does stand higher in public esteem than the cultivated, trained Christian physician. They are, and should be, men of greater influence than members of any other profession or calling, outside of the ministry, because they come in closer contact with the family than the members of any other profession. There is no more useful citizen than the high, clean doctor. His obligations are great, and his opportunities for doing good greater.

If I understand my subject, it is the relation which the medical profession bears to the administration of justice in the courts of the country. It is a maxim of the law, and, I may say, one of the most familiar principles in the law of evidence, that the opinions of witnesses are in general irrelevant. Reasoning is the proper function of judge, jury and counsel, and it is not a part of the normal function of a witness. To allow witnesses to draw conclusions or inferences is to usurp the province of court and jury. Even when witnesses are limited in their statement of facts in their

*Address before the Southwestern Virginia Medical Society, at its annual meeting in Pulaski, May 12, 1921.

own knowledge, their bias, ignorance, and disregard of the truth are obstacles which too often hinder the investigation of the truth. If it were generally allowable in legal procedure to permit witnesses to state not only those matters of fact about which they have knowledge, but also the opinion they might entertain about the facts in issue, the administration of justice would become little less than a farce. To the general rule, however, there are many exceptions.

This is true of every class of witnesses as to certain things, such as identity, speed of railroad trains and automobiles, values, handwritings, quantity, weight, measure, time, sanity of persons, distances, velocity, form, size, age, strength, heat, cold, sickness, health, temper, anger, fear, excitement, drunkenness, veracity, general character, etc., and it is often very difficult to determine when and when not an ordinary witness may give his opinion. An ordinary witness is never permitted to give his opinion when it requires such special study and skill as to distinguish the expert from the ordinary witness. No ordinary witness would ever be permitted to distinguish between the forms of disease and consequences of disease.

Another rule which excludes opinions is that a witness is never permitted to give his opinion or conclusions of facts testified to before a jury where the court and jury can draw conclusions from the facts as well as the witness. The exceptions to the general rule that witnesses cannot express opinions, but can only state facts, arise from the necessities of a proper administration of justice, the general rule being

(1 That the inference, conclusion, or judgment, is competent in proportion as it is shown to be simple, reflex or instructive, and is, on the contrary, rejected according as it is found to involve the element of mental operation, whether the reasoning is induction, deduction, or a combination of the two.

(2) As above stated, a particular conclusion, inference or judgment is excluded where the jury are capable of reasoning on the matter to a tenable conclusion, and is always received where they cannot do so, either (a) because they have no adequate major premise of experience, or (b) because they cannot from inability to gather, or adequately to weigh, at their true value, the facts into a reasonable, satisfactory minor premise.

(3) The conclusion, inference or judgment is accepted where it relates to a fact which is collateral, or relatively unimportant; and is rejected where the fact sought to be established is either in issue or so material thereto as to involve the substantial rights of the parties to a jury trial.

Opinions are never permissible if the facts can be ascertained and made intelligible to the jury, or if they are such that men in general are capable of comprehending and understanding, and, therefore, the ordinary affairs of life can never be subjected to expert testimony. Necessity, however, may call for an opinion, such as in the case where it is impossible to give the jury a fair or intelligible understanding of the matter in controversy. In all such instances it is received in the furtherance of justice. The opinion of witnesses possessing peculiar skill is admissible when the subject matter of inquiry is such that inexperienced persons are not likely to prove capable of forming a correct judgment upon it without such assistance. It is often necessary, as we have seen, in the administering of justice to admit the opinion of ordinary witnesses as evidence. Therefore, if the non-professional witness must on grounds of necessity sometimes be allowed to state the inferences which irresistibly rise in his mind from those minute facts which he cannot detail, there are still stronger reasons for receiving, under proper limitation, the opinion of those skilled in matters of every particular trade, science, or art. In many cases, the subjects under investigation are wholly unfamiliar to the jury and to the court, and, if opinion evidence were excluded, there would be no adequate mode of arriving at any satisfactory conclusion. The law recognizes this fact, and the courts have adopted the rule of admitting the opinion of witnesses when the case so far partakes of the nature of a science as to require a course of previous habit, or study, in order to obtain a knowledge of it; and, therefore, the court permits the witness, when it is made clear to the court that the witness has shown himself to be skilled in the business or profession to which the subject relates, to testify as an expert and give his opinion from either a state of facts given to him, or from his own personal examination of the subject about which he is called to testify.

In the discovery of truth, which is the great purpose of the law, every department of hu-

man knowledge should be made to assist, and therefore the physician must, when it becomes necessary, apply the knowledge of medicine to the requirements of law. Both the student of medicine and the student of law are equally interested in a knowledge of what is called medical jurisprudence, that is, legal or forensic medicine. Courts try every character of cases, and among them cases affecting life and reputation and property, and when it becomes essential for a proper trial to appeal to medical knowledge, such cases are termed in law *medico* legal cases, and the science of the application of medicine to cases of that character is called medical jurisprudence. Both lawyers and doctors, therefore, should be acquainted with medical jurisprudence.

The physician often is placed in an attitude where he must give publicly a professional opinion, and, whether qualified or not, must then do his best in the position of a medical witness to aid the cause of justice. How important it is then to every doctor, whether he be a general practitioner or whether he follows a special line, to acquaint himself with the principles of forensic or legal medicine! There are many cases brought before courts which cannot be settled in any other way except by an appeal to medical knowledge, sometimes to one department of medicine, and sometimes to another, and it not infrequently happens that many departments of medicine are simultaneously called into requisition in order to arrive at a proper decision. It is of the utmost importance to a physician when he gets on the stand that he should thoroughly understand what he is talking about. When he has carefully conducted the methods of scientific research, there remains this duty upon him, of giving the results of his investigation to the court in the form of testimony, and, whether the doctor will or not, if he attends the case which is under investigation, he is compellible to testify, not only to the facts which he saw and which came under his observation, but the conclusion reached by him from his investigation.

The foregoing description of the qualifications necessary to constitute a normal medical witness in a court of law should not deter a physician from entering on the study. Of course, it is not expected of any doctor, nor is it within the mental capacity of any individual, that he should be at the same time versed in all the principles of medicine and jurisprudence, or that he be able to answer correctly all the possible questions that might be asked, or remove all medical difficulties that might occur during the progress of a trial. The law does not expect anything more of a physician than an average knowledge of his profession and of that which falls more peculiarly under the province of a medical witness. Of course, the more the physician knows on the subject about which he testifies, the better witness he will make. The duties of a medical witness are distinct from those of a physician or surgeon. Great authors of forensic medicine all draw this distinction. The physician or surgeon looks only to the treatment of the disease, and bends his energies to the saving of life, but the province of the medical witness is to aid the law in fixing guilt on the perpetrator of the crime, or to rescue an innocent person from a false charge. Often he is required to determine the cause of death, whether it is natural or violent. "Some members of the profession," says the distinguished English author, Dr. Taylor, "have been inclined to look upon medico-legal practice as an unnecessary addition to their ordinary duties, but there are few who have long engaged in the practice who have not found themselves occasionally placed in situations of difficulty from the accidental course of cases demanding legal investigation."

"It is obvious then that the duties of a medical jurist are of a very highly responsible nature, and of great importance to society, while the cases which call them into exercise are purely accidental. The physician who thinks himself secure in the most retired corner of America is liable at any moment to find himself suddenly summoned as a witness in a trial to answer questions which perhaps during a long period of practice he has been lead to regard as wholly unimportant. Under such circumstances it is scarcely possible that he can avoid exposing his inexperience, and to hear the lawyer examining him ask: *'Have you ever attended to or thought of these subjects before?'* "

It is a frequent charge against members of the medical profession that they are the worst witnesses on matters of both fact and opinion. I do not believe this is true. Those who make the charge forget and overlook the great difficulty and complexity of the many questions which are put to the medical man compared to

those put to other witnesses. But this is true: if the medical man does not know the subject about which he is undertaking to testify, the skilled attorney, without any knowledge whatever of medical jurisprudence, will expose his ignorance to a curious public.

I once, along with other counsel, defended a case of murder, where a very prominent man, while intoxicated, slipped into his father's room and got a shot-gun and walked out into the cornfield and deliberately shot down and killed the best friend the prisoner had. There never had been any difficulty between them before of any character, and our defense was that the prisoner was a *dipsomaniac*. Drunkenness, as is generally known, is no excuse for crime, but if the drunkenness has produced a diseased state of the mind, then a criminal act perpetrated by the prisoner might admit of exculpation either on the ground of insanity, or of the want of sane consciousness at the time of the act. The question arose in that case whether the prisoner was simply drunk, or whether he was a *dipsomaniac*, that is, whether he had a diseased mind. The experts for the defendant testified from the facts and circumstances detailed of the life, character and conduct of the prisoner that he was a *dipsomaniac*, and that he was wholly irresponsible, in their opinion, for his act. The Commonwealth put on the stand, however, among others, a doctor of high standing in his community, who testified that there was no such disease as *dipsomania*. In the defense of the prisoner, we had gotten all the recent works upon medical jurisprudence and every other medical book that bore upon that subject, and each and all of us were perfect adepts on the subject of *dipsomania*. We had studied Beck, Taylor, Whitsett, Wharton and Stille, Reese, and all the other authors we could get. This particular doctor who was summoned for the Commonwealth was cross-examined by Hon. Daniel Trigg, and he went over the different authors, and asked this doctor if he knew what Whitsett, Taylor, Beck, etc., said, and asked him if they were not good authorities. His answers showed clearly that he knew nothing about either the authors or what they said, and, over my protest, Mr. Trigg then asked him if he knew what Dr. Thool (Fool) said on the subject, and instead of his saying he knew no such author, he answered that he did not remember exactly what Dr. Thool (Fool) said. Of course there was no such author and no such book.

Another case which came under my observation was the illness of a prisoner in jail. The prisoner was charged with murder in the first degree and the court had declined him bail. He then got sick in jail, or protended to get sick, and the defense summoned six eminent physicians to examine the prisoner, and the Commonwealth summoned six. The six physicians summoned for the defendant testified that his physical condition was such that longer confinement in jail would be detrimental to his health, and the six other physicians, equally eminent, testified that in their opinion there was nothing the matter with him. This conflict of medical opinion was astounding to me, and afterwards I met one of the physicians summoned for the Commonwealth, Dr. Samuel Sayers, of Wytheville, Virginia, and asked him how it happened that there was such a conflict in the testimony of the doctors in that case, and he said that when the physicians for the Commonwealth examined the prisoner, they found that he had a very high pulse. I believe he told me 120, but they found no cause for the high pulse, and with the great fund of commonsense that great and eminent physician had, he suggested to his associates that they count each others' pulse, and they found that there wasn't a man among the six that didn't have as high a pulse as the prisoner, and that the quick pulse was due to no disease in the prisoner, but simply to the excitement of the occasion, both on the part of the prisoner and the physicians, and they, therefore, concluded that there was nothing the matter with him. Had the other physicians counted their own pulses, they perhaps would have agreed with the six that did count them.

This divergence of opinions of doctors who are called for the different sides of a case does not, in my judgment, reflect in any way upon the profession, for it is perfectly natural for the doctor who is called for the Commonwealth to give to the Commonwealth all the assistance possible, and the same is true of the professional witness called by the defendant, both of whom are equally honest, but this divergence of opinion makes it the duty, therefore, of a medical witness, or perhaps I should say a medical jurist, as they are called in the medico-legal works, to cultivate a faculty of minute observation of medical and moral cir-

cumstances. In other words, as judges have sometimes said, when a medical man sees a dead body he should notice everything. For instance, as Mr. Taylor says, "He should notice whether any part of it is cold, or warm, whether the limbs are cold and rigid, or cold and pliant." That would be of no earthly advantage to him from either a medical or surgical view, but it might enable him as a witness to tell how long the person had been dead.

This conflict of opinion of medical witnesses has made me conclude, after more than forty years of the practice of my profession, either on the bench, as prosecuting attorney, or in general practice, that there should be legislation on the subject of medical experts; there should be appointed in every circuit by someone, preferably by the judge of the Circuit Court, a competent physician, whose duty it should be to examine every suspicious case of violent death, or suspected poisoning, of infanticide, etc., whenever called upon to do so by friends of the family, the local physician, the attorney for the Commonwealth, or the prisoner, and he should be paid for his services by the State, but he should not be a representative of the State, but of the court. He should, further, have the right to call to his assistance, if desired by him, any other appointee of a different circuit to assist him in making his examination.

This subject has engaged the attention of some of the ablest minds in both the professions of law and medicine, but, so far as I have observed, without any definite results.

There have been suggestions made that there should be one or more men in the State, who should be state officers, physicians of the highest education, experience and training, who should devote their entire time and attention to this duty, and that they should be paid an excellent salary. Such an office might be beneficial if kept out of politics, but, in my judgment, the better way is as I have suggested, and this method is not wholly free from objection. These appointees, if possible, should be the only medical witnesses examined, but in Virginia, under our Constitution, there is no way to prevent any prisoner from summoning as many experts as he may desire, the Constitution providing that "in all criminal prosecutions, a man hath a right to demand the cause and nature of his accusation, to be confronted with the accusers and witnesses, to call for evidence in his favor, and to a speedy trial by an impartial jury of his visinage, without whose unanimous consent he cannot be found guilty."

You see, therefore, some of the difficulties which would attend legislation of that sort; but, notwithstanding those difficulties, I am clearly of opinion that there should be legislation removing as far as possible the unjust criticism of experts, especially those who testify for the defendant.

It has been more than twenty years since I appeared in the case where the defense was *dipsomania*. The prisoner was found guilty of murder in the second degree. The jury believed from their verdict that there was no such thing as *dipsomania*, and the poor fellow, who should have been acquitted on account of his diseased mind, was made to suffer and to die in the penitentiary, when he was a typical *dipsomaniac* and, for that reason, should not have been incarcerated in the penitentiary. I do not believe that any doctor educated in this day, or in recent years, would deny under oath, or give as his opinion, that there is no such disease as *dipsomania*. That physician, who was a good practitioner, had doubtless never read a line of medical jurisprudence from any author; he had his general notions that there was no such disease; that there were simply drunkards and habitual drunkards, and people who had gone crazy from long continued use of alcohol, but that a man could have been born with a diseased mind, which would be absolutely normal until fired by liquor, but who would travel through fire and blood to get liquor when those periodical spells would come upon him, was to his mind nothing but the fancy of lawyers in order to acquit a guilty prisoner. He had not prepared himself thoroughly upon the questions bearing upon the disease about which he testified. This he should have done in order to further the ends of justice, and to avoid the criticism he received then and I am giving him to-day.

Another thing perhaps I ought not to say, but yet I am going to do so, and which I have heard some physicians say they have been taught, is that when a medical witness cannot answer a question propounded to him "he should jump behind technicalities." I think the medical expert should avoid the use of every technical expression in giving his testi-

mony. Pomposity and pedantry always expose the witness to ridicule and contempt. There is nothing in which a lawyer cross-examining a witness delights more than to have the witness talk in language which the average man cannot understand.

I once, as Commonwealth's Attorney, was prosecuting a case for murder by poisoning, when the defense put a doctor on the stand, summoned from another state, who came into the court house dressed in a Prince Albert suit, silk hat, carrying a gold headed cane, and wearing a watch fob that would weigh something near a quarter of a pound, and he never used a word that the jury understood from the time that he began to testify until he closed, and when he was turned over for cross-examination, I asked him one question only, and that was this: "Doctor, I do not know anything about what you have told the jury, and I do not suppose that they know, but I would like to know if, in your opinion, the deceased had been afflicted with all the things that you have described, would she not have died within half an hour?" His evidence was utterly worthless to the prisoner before the jury, and the prisoner was convicted of murder in the first degree. Whether he testified to the truth or not no one ever knew, because neither judge, jury nor counsel knew what he was talking about.

The medical witness, as every other witness who wishes to make an impression, should maintain a quiet, dignified and composed demeanor on the stand, never exhibiting any irritability or temper, however much he may be provoked by opposing counsel. He should always rely upon the counsel for the side upon which he has been summoned to make objections when the questions are improper. He should answer in a quiet manner, giving his explanations in the same way, and never make an effort to answer any question to which there is objection until the court passes upon the objection, and, above all things, he should never be afraid to answer any question about which he has no information in the negative, frankly admitting that he does not know.

When I left the University of Virginia and was asked a legal question, I answered promptly one way or the other. I then thought that I knew the law, but after working in my profession as assiduously as possible, and giving to it all the study of which I am capable for more than forty years, I now know that I do not even know the beginnings of that great science, much less all of its ramifications and intricacies.

I do not know whether the same rule would apply to the doctor, but from my experience with and observation of medical witnesses, I have found that those who know the most are the most ready to admit that they cannot answer every question propounded, and those who know the least are most ready to answer any question asked, lest they might appear not to be skilled.

I never saw this more completely exemplified than once in a civil action, in which I was the trial judge, in which damages were claimed for an assault, and there was a doctor, who is living today and practicing medicine in one of our cities, who answered Attorney J. L. Kelly, now the President of the Court of Appeals of Virginia, that the normal temperature of a man was 76. I thought when he first gave that answer that it was simply a slip, but it was soon demonstrated by other questions propounded by Judge Kelly, which arose by reason of that answer that he did not even know, though he was testifying as an expert, the normal temperature of a human being.

Therefore, I, with my unqualified approval of its sentiments, conclude my remarks of the evening in the language of one of the most distinguished writers of medical jurisprudence:

"That the students of medicine and law are equally interested in a knowledge of forensic medicine, as it is termed, and it should require no argument to show its importance to the members of these professions, because the doctor cannot entirely evade its claims, although he may seek to do so, since the very nature of his profession, together with his assumed public position as an accredited physician, render him liable at any moment to be confronted with a case involving the intricate question of homicidal, suicidal, or accidental death, of infanticide, of criminal abortion, of rape, of drowning, and of numerous other cases which must necessarily depend for their elucidation upon the physician who had previously given his professional attendance in the case, and who must give his evidence before the court."

I again wish to express to you my appreciation for the compliment you have paid me in extending the invitation of your Association to make this address, and also to express my

pleasure and thanks to the Medical Association of this city for this splendid banquet, and for giving me an opportunity to meet and greet again my personal friends among you, and to have had the honor and pleasure of meeting those of you whom I had not theretofore met.

ATROPHY OF LYMPHATIC AND TONSILLAR TISSUE BY RADIUM AND X-RAY.*

By C. AUGUSTUS SIMPSON, M. D., Washington, D. C.

For some years it has been known that lymphatic tissue is very much more susceptible to X-ray and radium than connective tissue or bone. The thymus gland may be taken as a typical example of a lymphatic organ. Another example is the tonsil. Both glands are composed almost entirely of pure lymphatic tissue, the fundamental pathology being essentially the same.

In 1915, I did some experimental work on half grown guinea pigs and rabbits to see what the effects of X-ray would be on the thymus gland of these animals. The controls were pigs and rabbits of the same litter, approximately the same size and weight and living under the same conditions. The technique employed was to give 3 points Hampson radiometer each day for 8 days through 1 m.m. aluminum, pastille on the skin. My apparatus consisted of a 16-inch coil using 9-inch spark gap, 5 milliamperes current, Coolidge tube target 10 inches from the animal.

One week after the completion of treatments, the control and treated animals were killed, the thymus gland removed, and sectioned by Dr. Hunter, of George Washington Medical School. Microscopically, the treated glands could be divided into a capsular and an interstitial hyperplasia, both increased to a marked degree leading to a distinct sclerosis and enormous reduction in the amount of thymic tissue. The capsule was in places increased to six times the thickness of the capsule in the untreated gland.

The veins, arteries and capillaries were widely engorged with thombi and organized blood clot and the walls of the vessels were much thickened, all pointing to future organization of the vessel contents. In addition to this, there was a decided thickening of the trabeculae and a great increase in the reticulae, all taking place at the expense of the thymic cells; in other words, a rapid and unmistakable atrophy of the lymphatic tissue associated with an increasing amount of connective tissue and sclerosis of the entire gland.

Satenstein and Remer have recently studied the varying sensitiveness of the different tissues of the body to X-ray, the degree of sensitiveness being most marked in the lymphocytes and less marked in the fibroblasts and connective tissue cells, both being more resistant to the ray than neoplastic elements (epithelium), as cancer, which in turn was much less resistant and more sensitive to X-Ray than normal tissue. In saying it is less resistant to the ray, I mean that the tissues are unable to withstand the heavy doses of ray so that involution, absorption and atrophy, in the case of lymphoid tissue, results without permanent damage to the surrounding and very much more resistant connective tissue.

From the Rockefeller Institute and *Journal A. M. A.*, January 22, 1921, a report has recently been made that will prove a landmark in the treatment of hypertrophied tonsils. This article coming from such an ultra-scientific and ethical institution and men is not to be questioned or doubted. Briefly, it told of the treatment of forty-six patients, ranging in age from 3½ to 45 years, by exposing the area of the tonsils to a massive dose of X-ray. Two weeks later distinct shrinkage of the hypertrophied tonsil was noted. This continued from one to two months, at which time the tonsillar crypts had opened and drained and in all but a few the exudate had disappeared from the throat, leaving the tonsil smooth, pale and of a healthy appearance.

Cultures were made from the crypts in forty of the forty-six patients before and at intervals after the treatment began. The common organisms of the throat were not affected. Thirty-six of the forty patients showed hemolytic streptococci and, of this number, the tonsils of thirty were free of this organism four weeks after treatment began. As the atrophy of the tonsil progressed the crypts became more shallow, drained better, the streptococci disappeared and the lymphatic tissue became displaced by connective tissue. The hypertrophied tonsils had undergone a shrinkage comparable to the atrophy of old age when the

*Read before the Medical Society of Northern Virginia and the District of Columbia in Alexandria, May, 1921.

gland is composed of little more than a small collection of fibrous tissue.

Viewing the treatment from the point of a roentgen therapeutist.. the entire technique is most simple and easily accomplished in one or two treatments. The measured amount of ray over the tonsillar area is less than that given for a skin cancer and averages the quantity used in the treatment of ring-worm of the scalp, or, in other words, a perfectly safe amount of X-ray.

The part of the technique that detracts from the treatment is the fact that the target or tonsil being at least an inch or more below the surface of the skin, especially in adults, and not in a very accessible or exposed location may not receive the full amount of ray intended for it. This would entail more visits, treatments, expense, and the loss of time of at least one month or more, as such large doses of X-ray cannot be safely repeated under four weeks, at least. Another drawback to the X-ray treatment is that when one rays the tonsil the parotid gland is irritated by the ray. This is followed by a dryness of the mouth, which is disagreeable to some patients; the parotid gland may become slightly swollen and tender the day following the X-ray treatment. These symptoms disappear in two or three days.

We have seen and known these symptoms for years when treating skin cancers in the neighborhood of the ear or over the parotid gland. No atrophy or damage of the parotid could result from such a treatment for two reasons: First, the dose of X-ray is not large enough to destroy a secretory gland like the parotid; second, the dose we employ (much smaller than in cancer work), is enough to permanently damage only the lymphatic tissue and the parotid is not a lymphatic gland, an example of the selective action of X-ray and radium. For this reason, dryness of the mouth disappears in a few days with no return of the symptoms. At the same time, by giving less X-ray and applying the radium directly on the tonsil, I am getting away from this disagreeable symptom.

In order to overcome this difficulty and to be able to concentrate the rays accurately and directly on the tonsil, obviate the use of large doses of X-ray over the structures of the neck, to save time and to make doubly sure of the results, I am using a flat dermatological 30 mg. double strength radium applicator, covered only with layer of sterile rubber tissue.

By using the unscreened applicator on the surface of the tonsil combined with three points, Hampson X-ray through these m.m. aluminum externally, I get a cross-fire of radium and X-rays which is concentrated and centered on the tonsil itself. This technique to me seems much more scientific and accurate, a surer and quicker way of reaching and atrophying the tonsil. A convenient handle is supplied with the applicator, which enables the patient to hold the unscreened radium directly on the tonsil for three-fourths of an hour. With this original technique, it is perfectly remarkable how quickly the tonsil begins to shrink and show other atrophic changes.

In one patient with a temperature of a hundred and one degrees, exuadate in the crypts of the enlarged, inflamed tonsils, cervical glands on left side of the neck the size of half an orange, associated with malaise and loss of appetite, the picture was changed in one week and after a single treatment. After two weeks, the tonsil was the only part of the entire naso-pharangeal field that did not share in the very acute, red, inflamed condition that involved every other part of the posterior nares and pharynx.

The enlarged glands had disappeared in three weeks and only a small part of the right tonsil was to be seen when the anterior pillar was pulled to one side and close inspection of the fossa was made. On the opposite side (left), not complicated by enlarged cervical glands, the enlarged bogey, protruding tonsil that enirely filled the space between the anterior and posterior pillar has entirely disappeared, leaving the pillars free, normal and uninjured.

The fossa once filled with lymphatic tissue and tonsil is now an empty smooth cavity in which an almond could be placed. On the floor of this cavity a small fibrous mass, the size of a pea, is to be seen. It is all that remains of the capsule and connective tissue frame work of the tonsil. This is the picture that is still to be seen four months after a single treatment.

A mild reaction which turns white and resembles the application of silver nitrate and is approximately the same size and shape as the radium applicator is to be seen on the tonsil

four or five days after the treatment is given. This slight superficial radium irritation disappears in two or three days. It sometimes involves one of the pillars, which it never damages, a splendid example of the selective action of radium and X-ray, which, as every one knows, is the very foundation and key stone of all radio-therapy. To be able to produce atrophy, and destruction of a radio-sensitive cell (lymphocyte, tonsil cell), and no atrophy or damage to a fibrous or connective tissue cell (anterior and posterior pillars), is no new discovery at all. In fact, it is a well known and easily demonstrated occurrence. If X-ray and radium did not have this selective action, the whole structure of radio-therapy would fall flat.

The dermatological flat radium applicator without filters is not only the practical applicator to use, but its advantages are apparent with the most superficial knowledge of radio-therapy. The Radium Company, of Colorado, has been kind enough to make a special applicator after my own design, that simplifies the treatment very much. It is three-fourth of an inch long, nine-sixteenth of an inch wide, one-sixth of an inch thick, oval in shape, with all corners and angles smoothed and polished. This new applicator contains 26 mg. of radium; covering a surface of the above dimensions, it gives one a considerably stronger applicator than the original double strength square skin applicator that I began working with. The radium is on the surface of the metal capsule having no aluminum to cover it and filter out the valuable beta ray and being of double strength, the strongest made, the effects of the radium rays are immediate and marked. In two weeks signs of atrophy (shrinkage of tonsil), begin and continue for two to three weeks. All of the more valuable beta rays are available, which is impossible when using, say, the popular metal capsules or needles such as are employed in uterine and deep cancer work. This metal capsule employed by gynecologists and surgeons is most frequently made of one-half to one m.m. of silver, which equals in density and filtration power two to four m.m. of aluminum. Such a filter eliminates and absorbs from fifty to ninety per cent of the very type of rays that one seeks to employ in this work. Not only does it waste from half to ninety per cent of the beta ray that is useful and needed, but it prolongs and multiplies the duration of treatment from four to eight times.

Conclusions.

1. From the cases that I have tested this technique on and the reports from the Rockefeller Institute combined with the rather large experience of six years in atrophying the thymus gland with X-ray, I am positive that I can cause complete atrophy and disappearance of any tonsil in one to three treatments.

2. Eliminating, as it does, any suffering, operation, anaesthetic, hemorrhage and pain, it most certainly will be a popular method of removing tonsils from patients, who have kidney, circulatory, blood pressure symptoms, or, for any reason, might wish to avoid an operation.

1610 *Twentieth Street, Northwest.*

CUTANEOUS BLASTOMYCOSIS; REPORT OF CASE.*

By JAMES W. ANDERSON, M. D., Norfolk, Va.

Although numerous cases of Cutaneous Blastomycosis have been reported from various parts of the country following the discovery, by Gilchrist, in 1894, of a fungus in miliary abscesses of the skin and the proof of its significance as a causative factor by Buschke and Busse, six months later, I feel that it is sufficiently rare in this section to report the following case that has come under my observation, with a brief outline of the outstanding points in the diagnosis of the condition, for probably like other rare diseases it is rare only in so far as it is not diagnosed.

The definition given by Hyde and Montgomery[1] that: "Blastomycosis is a chronic, inflammatory, infectious disease, characterized by the appearance upon the skin of a small papule or papulo-pustule, which becomes crusted and extends peripherally to form a sharply outlined, elevated, verrucous patch, situated upon a pus infiltrated base and presenting a characteristic sloping border, in which are seen minute, deeply seated abscesses," excellently describes the clinical features of the disease.

The diseases with which it is liable to be confused are: tuberculosis verrucosa cutis, vegetating syphiloderm, some cases of sporotrichosis, and the papillomatous lesions some-

*From Dermatological Clinic, St. Vincent's Hospital.

times produced by the ingestion of the bromides and the iodides.

From tuberculosis verrucosa cutis it is differentiated by its more rapid growth, the fact that the latter usually commences in childhood, has a deeper, more violaceous color, and is usually less extensive. Quite often, however, the clinical resemblance is so marked that the final diagnosis can only be made by the pathologist.

Vegetating syphilids usually have a history of syphilis, other signs of the infection including a positive Wassermann reaction, and show a tendency to papillary hypertrophy with a greenish, purulent discharge. They also occur as a rule upon the scalp or hairy portions of the body.

Sporotrichosis tends more to sluggish, painless ulcerations, which are fairly characteristic of the condition.

The papillomatous lesions caused by the ingestion of bromides or iodides frequently bear a marked resemblance to blastomycosis, but can be distinguished by their rapid growth and the history of having taken one of the drugs mentioned.

The final conclusions often can be reached only by the discovery of the fungus in the pus from the lesion.

The technique of examination for the organism is simple and should be carried out in all chronic ulcerative or papillomatous lesions where the diagnosis is in doubt.

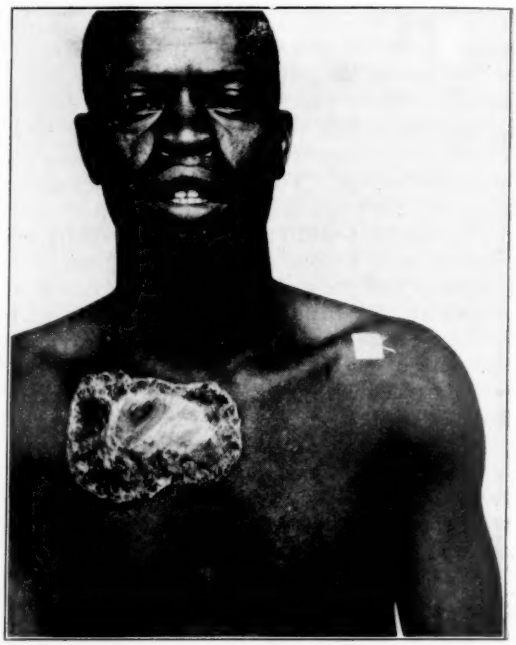
Report of Case.

J. F., negro, blacksmith, age 29, entered the Clinic at St. Vincent's Hospital, on July 29, 1921, complaining of a skin eruption on right wrist and right side of chest.

Past History—Negative.

History of Present Condition—About one year ago, while working at a forge, two pieces of hot iron struck him at the sites of the present lesion, causing a burn which healed readily, leaving however a small nodule at both points. At the end of a week or ten days these commenced to ulcerate and to spread by peripheral extension. Their growth was very slow and painless except when struck against some object while at work. The lesions continued to enlarge until they reached the size shown in the photographs.

Examination—Well developed negro, in good health with exception of the skin lesions,



Lesion on chest, showing elevated borders and central scar, due to spontaneous healing.

which had reached a size that they interfered with his work.

Examination of the skin revealed two lesions, one upon the right wrist in the form of an oblong plaque about four inches in diameter, beginning just below the base of the thumb and practically encircling the wrist, giving the appearance at a distance of having been wrapped about the part. The margin was unbroken and was elevated about three-eighths of an inch, sloping abruptly to normal skin. The surface of the lesion was composed of small, horny papillomata with pin-head sized abscesses scattered through it near the margin. On pressure, pus exuded between the papillae. In color, the lesion was a purplish-red, through which was mingled yellow areas, looking as though secondary infection had taken place. There were also occasional adherent crusts which bled on forcible removal.

The lesion on the chest presented the same characteristics with the exception that the margin was not so markedly elevated and that healing had taken place in the center, leaving a firm, brown scar appearing smooth on inspection, but on palpation a slight transverse cording could be noticed.

Pus obtained from both lesions and placed on a slide with liquor potassae, at the end of ten minutes, showed numerous double contoured,

Inner surface of wrist. Lesion practically encircling part.

refractile bodies with granular centers, singly, in pairs and, occasionally a budding form corresponding to the description of the blastomycosis.

Outer surface of wrist. Lesion practically encircling wrist.

DIAGNOSIS—Cutaneous Blastomycosis.

Cultures made at the time on glucose agar were contaminated by pus cocci and, as the patient disappeared from observation, no cultural report was obtained.

TREATMENT—The patient was given 30 grs. of potassium iodide three times daily and was instructed to use a dressing of one part of Lugols solution to ten parts of water. This was to be continued until the improvement stopped and remainder of the lesion removed by X-ray. Unfortunately the patient disappeared from observation so that the result of the treatment is unknown.

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290 *Monroe Building.*

TREATMENT OF TUBERCULAR PERITONITIS WITH THE QUARTZ LAMP.*

By SAMUEL NEWMAN, M. D., Vienna I. Medical Commissioner, American Joint Distribution Committee, Congress Poland.

Seven years of starvation in central and eastern Europe worked havoc with millions of children. Every form of tubercular disease, all manifestations of nutritional disorders, are unfortunately exhibited by millions of children in the new Republic of Poland. A systematic and scientific attempt to obtain exact data and statistics on the prevalence and forms of disease among the children in Poland is now being undertaken by American medical agencies operating in Poland. In the field under my observation, the incidence of tubercular peritonitis among children in orphanages has been noticed. Undoubtedly, tubercular peritonitis occurs to a greater extent in the non-institutionalized children in Poland, for in the scheme of food provisioning they came after the school and institution children. The relationship of tubercular peritonitis to pulmonary tuberculosis and to tubercular adenitis or to osseous tuberculosis has not been worked out yet. An answer to this interesting question will be possible after the completion of an examination of a hundred thousand children, now undertaken in Poland. In visiting children's hospitals in Poland one meets with entries like these: Tubercular Peritonitis, or Tubercular Peritonitis and Pulmonary Tuberculosis.

For those in Europe faced with the problem of infant and child morbidity and mortality, its solution is already clear. It is not a problem of therapeutics, but of food, air and sunshine. Fresh air, a drop of even vitiated but boiled milk, and a ration of meat once a week will be the deciding factor between tissue decomposition and regeneration. I used the phrase "tissue decomposition" advisedly. One sees here the most frightful tuberculous tissue destruction. In a rather rich and industrial

*The data for this article was taken from the "Children's Hospital, Anny Mary," in Lodz, Poland, one of the most important institutions in Poland. Dr. Brudzinsky, founder of the Pediatric School in Poland, was associated with this institution. Dr. Newman is interested in problems relating to child welfare work and is studying pediatric methods in Poland.

section of Poland I saw a young girl of fourteen with necrosis of the sternum and sloughing of the surrounding tissue; a young boy of thirteen presented his body an actual mass of caseating tissue; every long bone in his body was pathologically fractured!

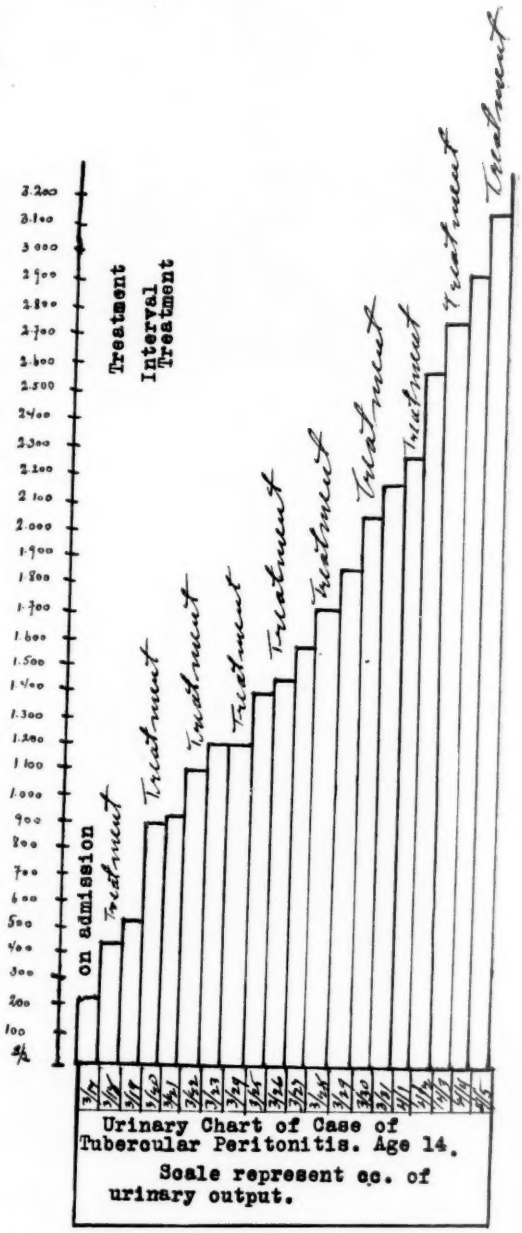
However, the therapist in the field of pediatrics has also been applying himself to problems in infant and child welfare in central and eastern Europe. Herewith, I wish to note a method of treatment of tubercular peritonitis in children in the best of Polish hospitals. The treatment consists in the application of the radiations of the Quartz Electric Lamp. Quite a considerable number of cases have been treated, burned, and apparently cured by this method that the accumulated experience allows now of a certain definite technique to be followed.

Method of Treatment.—The *unit* of time that the abdomen should be exposed to the quartz lamp is the minute. The *unit* of distance from the lamp is the meter. The *unit* of time interval between treatments is forty-eight hours.

The patient is placed on a table directly under the quartz lamp at a distance of one meter and the rays are applied from one to three minutes. The exposures are repeated every other day, but each time shortening the distance from the lamp by a few centimeters and lengthening the time of application. After a considerable number of ray applications the safe limit from the lamp is considered to be eleven centimeters, and the longest period of exposure, ten minutes. No daily applications are practiced.

Results Obtained.—No final claim is made yet for this method of treatment in tubercular peritonitis. In comparison to the large number of tubercular cases in Poland, a record of results obtained in a series of hundred cases is not convincing. It can be stated, however, that no more laparotomies are practiced in this hospital in Poland, that the clinical results are very rapid and even spectacular, and that a following up of the cases over a period of six months showed the treatment to be effective.

The accompanying chart shows the influence of the ultra-violet rays on the excretion of the tubercular exudate. It will at once be noticed that *pari-passu* with the treatment the quantity of urine voided daily is greatly increased. Palpable mesenteric glands also melt away quickly under the influence of this treatment.



In the series of cases treated at the "Children's Hospital" in Lodz, there was pulmonary tuberculosis in addition to the process in

the abdomen and the glands. These cases also got clear of the abdominal exudate.

Like with many other new methods of treatment, no premature enthusiasm is justified. However, the treatment of tubercular peritonitis with the ultra-violet ray should find place in our children's hospitals before laparotomy is undertaken.

Seilerstätte 15.

REPORT OF A CASE OF UTERINE BLEEDING TREATED WITH RADIUM.*

By JOSEPH J. MUNDELL, M. D., F. A. C. S.,
Washington, D. C.

We frequently see cases of moderate or excessive uterine bleeding in which we can find no gross lesion in the pelvis to account for it. This type of bleeding is spoken of as pathological bleeding in the grossly normal uterus and it is merely a variation in the amount, duration, character or periodicity of the normal menstrual flow.

Heretofore, uterine anatomical lesions have been given as the cause, such as: endometritis, fibrosis, metritis, arterio-sclerosis of the uterine vessels, syphilis, tuberculosis, passive congestion due to misplacements, pelvic or abdominal tumors, cardiac or cardio-renal disease, high blood pressure, etc.

In 1908 Hitschman and Adler made sections of a large number of uteri and found hyperplasia of the endometrium, fibrosis and arterio-sclerosis of the uterine vessels present in just as many non-bleeding uteri as in the bleeding ones.

It is is now generally held in these cases, that the congested endometrium is a counterpart or an exaggerated form of the normal premenstrual endometrium and though it, like the normal, is concerned in the outpouring of the menstrual blood; nevertheless, it is stimulated or otherwise affected by the same influences or substances which bring about normal menstruation. Clinical research and animal experimentation has demonstrated that that substance is the corpus luteum or the Graffian follicle. In normal menstruation, the cycle of hyperplasia and depletion of the endometrium is coincident with the cycle of the development and recession of the corpus luteum.

It seems then that in pathological, as well as in normal bleeding, some excitation or disturbance of the Graffian follicle in some stage of its development, probably the corpus luteum, is the essential factor. If this be true that pathological bleeding is only a variation of the normal and we wish to bring about its cessation, then the logical procedure is to attack the one essential element in the menstrual cycle, namely the Graffian follicle.

Next to the lymphocyte and the spermatozoa the Graffian follicle is the most susceptible structure of the body to the action of radium. Within a few hours after the administration of radium the nucleii of the Graffian follicle begin to break up and within ten days the whole structure of the follicle is destroyed.

In functional menorrhagia or metrorrhagia near the menopause, when no gross lesion, such as tumor or cancer of the uterus, can be found, the use of radium is the treatment par excellence. Dr. Leda J. Stacy, who is at the head of the Gynecological Section at the Mayo Clinic, says that its action is *specific*.

While the use of radium in small dosage in the bleeding of younger women is advocated by some, it must be used with caution and the patient should be frankly told the risk of bringing on an artificial menopause.

The diagnosis in these cases should be doubly insured by pathological examination of the uterine scrapings to rule out cancer of the body.

In the past, treatment of these cases has been conspicuous by its failure, cases have been curetted and curetted, have been treated with organotherapy, corpus luteum extract, ovarian extract, thyroid extract, pituitary extract, mammary extract, etc., with the same dismal failure until menopause intervened or else in some cases hysterectomy has been done. One intrauterine application of fifty milligrams of radium for twelve hours with the patient comfortable in bed for only a few days produces a cure in at least ninety to ninety-five per cent. of the cases.

I will report one typical case:

Mrs. H. Age 45 years. Large, healthy, well developed and well nourished woman who has always enjoyed excellent health up to the present illness.

*Read before the District of Columbia Medical Society, April 13, 1921.

Para IV, all normal births. Menstrual history was normal up to three years ago.

April 1917, she was dilated and curetted and had a trachelorrhaphy for leucorrhoea.

Beginning February 1918, she suffered with menorrhagia, periods lasting two and three weeks, until April 1919, when she was curetted. The curettings were examined and reported negative for malignancy. The excessive flow was benefited by the curettage for a few months.

When I first saw the patient in April 1920, her flow was excessive, lasting two to five weeks.

Abdominal examination was negative. Vaginal examination showed the cervix small, hard and fibrous; the fundus was about normal size and freely movable; both appendages were negative.

Various remedies were administered unsuccessfully and on June 23, 1920, at Columbia Hospital, dilatation and curettage was performed. The pathological report was chronic endometritis, no evidence of malignancy. For three months the flow was slightly improved, but then became heavy, lasting two and three weeks.

January 20, 1921, under gas anesthesia, the patient was again curetted and fifty milligrams of radium was placed within the uterine cavity for twelve hours and the patient left the hospital on the fifth day. No evidence of malignancy was reported from the curettings. The bleeding ceased immediately and has not returned and the patient in this respect is well and happy, so much so that yesterday she phoned me asking if she could not make a contribution to the Madame Curie Radium Fund.

N. B.—Date of publication, eleven months following treatment, patient reports that bleeding has not returned and that her health is excellent.

1616 *Rhode Island Avenue, Northwest.*

Public Health

Notes From the State Board of Health Laboratory.

The growth of the laboratory during the last 3 years may be readily seen from the following table:—

	Oct. 1, 1918 to Sept. 30, 1919	Oct. 1, 1919 to Sept. 30, 1920	Oct. 1, 1920 to Sept. 30, 1921
Tuberculosis	1,169	1,320	1,293
Diphtheria	624	1,591	2,063
Typhoid:			
Widal	982	825	899
Blood Culture		31	52
Feces			*26
Malaria	113	337	234
Gonorrhea		*537	319
Wassermann	2,323	9,308	11,046
Rabies		82	83
Total	5,211	14,031	16,015
Miscellaneous	109	55	26
Intestinal Parasites	1,812	2,239	1,148
Total Diagnostic	7,132	16,325	17,189
Water:			
Bacteriological	1,158	1,800	2,767
Chemical	14	36	44
Total Examinations	8,304	18,161	20,000

*Previously included with miscellaneous.

We are constantly endeavoring to improve our service. The latest addition in this respect is the night examination of diphtheria cultures. All swabs received up until 1 P. M. are now examined the same evening between 7 and 8 P. M. This often saves an entire day and where a telegram is requested the physician often receives his report within 24 hours of taking the culture. This service will be maintained throughout the diphtheria season, that is as long as there are sufficient cultures to justify the cost.

AUBREY H. STRAUS, Bacteriologist.

Proceedings of Societies

MEDICAL SOCIETY OF VIRGINIA.

Report of Executive Council.

At a meeting of the Executive Council, June 22, 1921, the Secretary-Treasurer was instructed to pay to Richmond Academy of Medicine, the sum of $50.00, as the Society's contribution toward the prosecution of violators of the Medical Practice Act. He was also instructed to pay to Dr. J. W. Preston the sum of $150.00, for the same purpose.

The secretary reported 125 delinquent members to the Society and he was instructed, on formal motion made by Dr. Gray, seconded by Dr. Howle, that these delinquents be notified that they would be given an additional thirty days in which to settle their accounts and on their failure to do so should be dropped from membership.

The secretary was instructed to get data on methods of other state organizations in handling legal defense for members of the Medical Society against whom suit is brought for alleged civil malpractice.

The secretary made a report on the use of the small library now in the office of the Medical Society, by members throughout the state. On motion by Dr. Nelson, seconded by Dr. Howle, the executive council recommends that a circulating library, suitable to the needs of the Society, be established.

The program as outlined by the Publication Com-

mittee, was submitted to the executive council and approved. The subject selected for discussion at the Lynchburg meeting was "Systemic Manifestations of Chronic Local Infections."

Respectfully submitted,

Garnett Nelson,
Clerk.

PROCEEDINGS OF THE HOUSE OF DELEGATES.

WEDNESDAY, OCTOBER 19, 1921.

Roll of accredited delegates and members of Executive Council was called and a quorum found present.

The reports of the President, Clerk of the Executive Council, delegates to the American Medical Association, Necrological Committee, and Secretary-Treasurer, read the previous evening, were called for by the President, and they were unanimously accepted and referred to the Executive Council as prescribed in the Constitution and By-Laws. The Secretary-Treasurer was instructed to withhold from publication the financial report until the close of the year 1921.

A plan was presented looking to the establishment of a Circulating Library, suitable to the needs of the Society, and unanimously approved. The President was instructed to appoint a committee to devise ways and means for putting this plan into execution. The President appointed the following as members of this committee: Drs. Stuart McGuire, Richmond; Southgate Leigh, Norfolk; I. C. Harrison, Danville; Isaac Peirce, Tazewell; R. J. Payne, Fredericksburg.

The President made a statement concerning the work of the American Society for the Control of Cancer. A motion was passed that the matter of co-operation of the Medical Society of Virginia with this organization be referred to the Executive Council.

The Secretary-Treasurer was instructed to co-operate with field workers of the American Medical Association in securing members to the two organizations, with the understanding that the work was to be prosecuted only so long as the results justified it and only with the co-operation of the local societies.

The following resolution was introduced:

Whereas, The Commission on Medical Education in Virginia, appointed by the Governor to study medical education in Virginia and make a report to the legislature, has recommended that there be one state supported school in Virginia, and

Whereas, The Commission has recommended that the departments of medicine, dentistry, and pharmacy be conducted by said medical school as a part of the University of Virginia, and

Whereas, The Commission has recommended that said school be conducted in Richmond, and

Whereas, The State Dental Association unanimously, and the State Pharmaceutical Association unanimously, with two exceptions, have endorsed this report, and

Whereas, The medical profession of the state has, by an overwhelming majority, indicated its appreciation of the urgent necessity for adopting this report; therefore, be it

Resolved, 1. That the Medical Society of Virginia, in its annual session at Lynchburg, endorses this report and urges the state legislature and the Governor, to enact the necessary laws to put it into effect at the earliest psosible date, and, be it

Resolved, 2. That the editor and publication committee of the Virginia Medical Monthly be instructed to use its columns in support of the Commission's report.

After considerable debate, the vote was called for on this resolution, with the following result: Ayes, 24; noes, 12. The Secretary was instructed to report the vote by which this resolution was passed, making his report to the Medical Society of Virginia at the general meeting, Thursday afternoon.

The House of Delegates approved the optional plan of medical defense for members of the Society, who may be sued for alleged civil malpractice, the cost to the members not to exceed $1 per annum.

The House of Delegates approved the suggestion of the Secretary-Treasurer that he be supplied with a Ford automobile for the state organization work. There being no further business, the meeting adjourned until Thursday, at 9 A. M.

THURSDAY, OCTOBER 20, 1921.

The President being called away, Dr. J. C. Flippin was unanimously elected chairman of the meeting.

Dr. Nelson read the report of the Executive Council.

Dr. S. W. Maphis, of Warrenton, was nominated for membership on the State Board of Medical Examiners and his nomination was unanimously approved.

The motion was made and unanimously adopted that the President appoint a committee of five on Child Hygiene. He appointed the following committee to co-operate with the State Department of Health: Dr. McGuire Newton, Richmond, chairman, and Drs. Mary E. Brydon, of the State Department of Health; L. T. Royster, Norfolk; John Staige Davis, University; G. A. Stover, South Boston.

Motion was made and passed unanimously that the President appoint a committee of seven to co-operate with a similar committee from the State Nurses' Association, to work out a training course for nurses, adjusted to meet the present acute shortage of nurses. The President appointed the following committee: Drs. J. Allison Hodges, Richmond, Chairman; A. M. Willis and R. C. Fravel, Richmond; Joseph T. Buxton, Newport News; C. J. Andrews, Norfolk; Mosby Perrow, Lynchburg, and J. C. Flippin, University. The following alternates were appointed: Drs. Charles R. Robins, C. C. Coleman and W. T. Oppenhimer, of Richmond; J. S. Davis, University; L. G. Richards, Roanoke; W. F. Drewry, Petersburg.

Invitations were received from Roanoke and from Norfolk for the Society to meet in those cities next year. The invitation of the Norfolk County Society was accepted unanimously.

Dr. W. W. Wilkinson, La Crosse, was nominated a member of the Executive Council from the State-at-Large. The following nominations for membership on the Executive Council, to fill vacancies caused by expiration of term of office, were reported by the Secretary-Treasurer: Second District, Dr. J. J. Miller, Norfolk; Fourth District, Dr. Thos. G. Hardy, Farmville; Sixth District, Dr. H. B. Spencer, Lynchburg; Ninth District, Dr. Francis H. Smith, Abingdon.

The report of the Executive Council, containing the following recommendations, was unanimously adopted:

Dr. E. L. Kendig, the chairman of the Council

having resigned, Dr. Isaac Peirce, of Tazewell, was elected chairman, with Dr. Garnett Nelson, as clerk.

That Dr. Paul W. Howle and Dr. Garnett Nelson be authorized to employ an auditor to audit the statement of the Secretary-Treasurer as soon as possible after the end of this fiscal year and report to the first meeting of the Executive Council thereafter, that they shall comply with Section 3, Article IV. of the Constitution and By-Laws.

That all reports made at the opening meeting be received and filed.

The Council nominated the following officers:

For president, Dr. E. C. S. Taliaferro, Norfolk.

For first vice-president, Dr. John Staige Davis, University.

For second vice-president, Dr. Clarence Porter Jones, Newport News.

For third vice-president, Dr. J. Beverly DeShazo, Ridgeway.

For secretary-Treasurer, Mr. G. H. Winfrey, Richmond.

All committees continued as before.

That the salary of the Secretary-Treasurer and Business Manager be made $3,000 a year, and that the salary of the editorial and business assistant be made $2,000 a year.

These reports were read to the Society as a whole on Thursday afternoon.

A motion was made and passed that the proceedings of the House of Delegates and recommendations of the Executive Council be unanimously approved, except that resolution endorsing the report of the Commission on Medical Education in Virginia. This resolution, endorsing the above mentioned report was called up for consideration. After considerable argument against this resolution, a substitute resolution was introduced, advocating that the Medical Society of Virginia "refrain from any present expression of opinion as a body upon the question of location of the single state-supported medical school."

On request of several proponents of this substitute resolution, a recorded vote was made with the following result: Ayes, 97; noes, 174. The substitute resolution was, therefore, declared lost.

The original resolution, calling for the approval of the body as a whole of the report of the House of Delegates, endorsing the findings of the Commission on Medical Education in Virginia, was now called up and received the approval of the majority of those present.

FRIDAY, OCTOBER 21, 1921.

In meeting of the Society, as a whole, it was moved and passed that the rules be suspended and that the report from the Membership Committee be presented. The chairman of the Membership Committee presented nineteen applications for membership, all of whom were unanimously elected.

The Secretary-Treasurer was instructed, by a unanimous vote, to express the thanks of the Society to the members of the Lynchburg and Campbell County Medical Society, and through them to the people of Lynchburg, for their generous hospitality during the period of the meeting.

G. H. WINFREY,
Secretary-Treasurer.

Southwestern Virginia Medical Society.

The semi-annual meeting of this Society in Marion, September 21 and 22, under the presidency of Dr. W. R. Rogers, of Bristol, was one of the largest and best meetings in its history. Twenty-five new members were received into the Society. Drs. W. R. Rogers, Bristol, and R. H. Woolling, Pulaski, were elected delegates to the Lynchbury meeting and Drs. F. H. Smith, Abingdon, and J. C. King, Radford, alternates.

Pulaski was selected as the next place of meeting, May 11 and 12, 1922, and the following officers were elected: President, Dr. A. B. Greiner, Rural Retreat; vice-president, Dr. T. K. McKee, Saltville, and secretary-treasurer, Dr. E. G. Gill, Roanoke (re-elected).

The Association of Surgeons of the Chesapeake & Ohio Railway

Held their annual meeting in Richmond, October 28, Dr. E. H. Griswold, of Peru, Ind., presiding. There were about a hundred members in attendance and an interesting scientific program was presented. Officers elected at this meeting are: President, Dr. James M. Salmon, Ashland, Ky.; vice-presidents, Drs. S. W. Hobson, Newport News; A. Murat Willis, Richmond, and Walter R. Griess, Cincinnati; secretary-treasurer, Mr. G. E. Meanley, Richmond (re-elected). The executive committee consists of Drs. S. G. Smelser, Richmond, Ind.; W. E. Vest, Huntington, W. Va.; Horace L. Goodman, McKendree, W. Va.; Leslie L. Bigelow, Columbus, O.; Fred W. Tyree, Hitchkins, Ky.; and Geo. J. Tompkins, Lynchburg, Va. The date and place of the next meeting will be determined later by the executive committee.

Miscellaneous

A Soft (Poetic) Answer Turneth Away Wrath.

A certain elderly gentleman consulted an X-ray specialist in regard to a sore spot on his neck. He was given treatment, and, inasmuch as it was with some difficulty, real or imagined, that he could come to town regularly for additional treatments, the specialist did not insist that he come at regular intervals, but requested the patient to return at such times as best suited his convenience, he being a man well past the eighth decade of life. This the patient did, but the intervals being rather irregular the results were not all that had been hoped for. In due course of time he asked

for his bill, and a statement of account was sent him. By return mail came the following letter:

April 11, 1921.

My Dear Doctor:

I hate like the devil to send you the enclosed check for $25, because it represents *waste*, which I abhor—something for nothing, the sore spot coming back regularly after each treatment, and on hand now.

In view of the fact that your old blow-gun accomplished nothing, I feel that your sense of justice will cause you to hand over the enclosed to the Red Cross, or the Public Health fund, or better still the Hoover Anti-Starving Fund.

Yours truly,

To this letter reply was made as follows:

Your answer to my modest bill
Is verily a bitter pill;
And tho' you retched a bit at mine,
I'll swallow yours without a whine.
The little check you'll never miss,
And you're a lucky man in this,
That were the sore not on your neck
You would have lost a bigger check.
The old blow-gun you count as nought,
Yet it has many battles fought
Against disease of every kind,
In bone and muscle, blood and mind;
And tho' to sneer at it you're prone,
Against them all it holds its own.
The little check you mourn as lost
May save some one from cold and frost.
The missile, too, that bears your name,
I'll treasure up and neatly frame,
As testimony strong, by Heck,
That tho' you've "got it in the neck,"
No one can there a symptom find
That aught is wrong within your mind.

G. M. M.

The effect of this is plainly mirrored in the old gentleman's answer:

April 19, 1921.

My Dear Doctor:

I am now tickled to death that I wrote you that impudent letter last week, because without it I never would have had your delightful reply. The members of my family are as much pleased as myself. I read it over every morning as a fitting preparation for my day's work, and, while I have no facilities for framing it, it will surely go into my letter file marked "Letters worth keeping." More than this I will seriously strive to develop sore spots on convenient portions of my anatomy to help keep your "blow-gun" in practice, regardless of the possibility that checks sent for future services may come back to you marked "No Funds."

Sincerely yours,

The Truth About Medicine

During September the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

The Abbott Laboratories:
Procaine-Adrenalin Hypodermic Tablets No. 2.
Dry Milk Co.:
Protolac.
Hynson, Westcott and Dunning:
Tablets of Benzyl Succinate—H. W. and D.
Intra Products Co.:
Ampules Ven Sterile Solution Mercury Oxycyanide 0.008 Gm.
Ampules Ven Sterile Solution Mercury Oxycyanide 0.016 Gm.
Lederle Antitoxin Laboratories:
Acne Combined Vaccine.
Mead Johnson and Co.:
Casec.
N. Y. Intravenous Laboratory:
Loeser's Intravenous Solution of Mercury Oxycyanide.
Seydel Mfg. Co.;
Benzyl Succinate-Seydel
Nonproprietary Articles:
Benzyl Succinate.
Calcium Caseinate.

Book Announcements

Neoplastic Diseases. A Text-book on Tumors. By JAMES EWING, M. D., Sc. D., Professor of Pathology at Cornell University Medical College, New York City. Octavo of 1,027 pages with 479 illustrations. Philadelphia and London: W. B. Saunders Company, 1919.

Neoplastic Diseases by Ewing is a comprehensive work of over 1,000 pages devoted exclusively to the history, theories, and pathology of tumors. It has evidently been the object of the author to make clear the origin and structure of tumors. Under improved nomenclature all tumors are discussed from the commonest varieties to those rare forms that are known only by the names of the authors who described them. Chief in importance is the discussion of cancer, the great purpose of the book being evidently to endeavor to do something that might benefit in eliminating this scourge. Cancer was well known to the ancients, and Hippocrates treated it by burning, a method we have seen revived in recent years. The theories of the nature of cancer are rather fully discussed, together with metastases, and

the effects of malignancy on the organism.

The description of both macroscopic and microscopic pathology are clear and concise, and a subject that is usually considered dry is made interesting reading. The subject is covered most satisfactorily. G.

Creative Chemistry. Descriptive of Recent Achievements in the Chemical Industries. By EDWIN E. SLOSSON, M. S., Ph. D., Literary Editor of the Independent, Associate in Columbia School of Journalism. Author of various books. 311 pages with many illustrations. New York. The Century Company. 1921. 8vo. Cloth.

A Treatise on Cataract. By DONALD T. ATKINSON, M. D., San Antonio, Texas, Fellow of the American Academy of Ophthalmology and Oto-Laryngology, etc. 8 vo. 150 pages, with original illustrations. New York. The Vail-Ballou Company, publishers.

The A. R. C. "Child Health Exposition",

Which toured the larger cities of devastated France beginning May, closed its season early in October at Valenciennes. During the five months, it was "shown" for periods of two to three weeks in six French cities, Lille, Roubaix, Tourcoing, Cambrai, Douai and Valenciennes, besides a month in Paris. The attendance at the Exposition averaged about 5,000 persons daily.

Every feature in the rearing of children according to the soundest and most approved methods was shown in the exhibition. Several French and American organizations joined with the American Red Cross in providing the various specialized departments. The American Committee for devastated France, the Bordeaux Training School for Nurses, the French Red Cross, and the Jardin des Enfants, were among the co-operating organizations. The exposition received the enthusiastic and unanimous support of the French medical profession in every city. Every local physician gave his services without charge, and most of them were occupied for nearly half their entire day, throughout the period of the exposition, in the arduous work of lectures, examinations, consultations, measurements and the judging of babies. Ample quarters for the exposition were furnished in each case by the municipal authorities,—usually in a public school building or municipal exhibition hall. Each morning hundreds of school children were taken through the exposition by their teachers.

It is expected that the exposition will be continued next summer under the exclusive management of the French child-health organizations.

Tests of Pine Product Disinfectants.

The Bureau of Chemistry and the Insecticide and Fungicide Board, as the result of a bacteriological and chemical study of pine product disinfectants, found that these products, while effective against *B. typhosus*, are not effective against *M. aureus* and *B. anthracis*, and should not, therefore, be used for general disinfecting purposes. When using pine-oil emulsions against *B. typhosus* it is safer for practical purposes, according to the report, to employ a solution 5 times the strength capable of killing the organism in 5 minutes. Thus, a product showing by the Hygienic Laboratory method a killing power of 1-500 should be used in a 1-100, or 1 per cent dilution. If the product will not give a dilution of such a concentration and remain completey emulsified, it should not be used as a disinfectant.

Copies of Bulletin No. 989, giving data upon which conclusions are based, may be had upon application to the Division of Publications, Department of Agriculture, Washington, D. C.

Suicide and Homicide by Race.

Eugenical News, in commenting on the suicide and homicide rate throughout the country, calls attention to the fact that suicide is a very minor cause of death in America among colored persons but, with this same class, the homicide rate is many times greater than for whites.

Hawaii to Have V. D. Clinic.

The legislature of Hawaii has appropriated $15,000 from the general revenues of the territory for the biennial period beginning July 1, 1921, for the establishment and maintenance of a venereal disease clinic in Honolulu. This is the first venereal disease clinic to be established on the island and will be free to all residents of Hawaii.

IN WRITING ADVERTISERS, PLEASE MENTION THIS JOURNAL.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.

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PUBLISHED BY THE PUBLISHING COMMITTEE.

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Editorial

Resolution by Medical Society of Virginia Endorsing the Majority Report of the Commission on Medical Education in Virginia.

Whereas, The Commission on Medical Education in Virginia, appointed by the Governor to study medical education in Virginia and make a report to the legislature, has recommended that there be one state supported school in Virginia, and

Whereas, The Commission has recommended that the departments of medicine, dentistry, and pharmacy be conducted by said medical school as a part of the University of Virginia, and

Whereas, The Commission has recommended that said school be conducted in Richmond, and

Whereas, The State Dental Association unanimously, and the State Pharmaceutical Association unanimously, with two exceptions, have endorsed this report, and

Whereas, The medical profession of the state has, by an overwhelming majority, indicated its appreciation of the urgent necessity for adopting this report, therefore be it

Resolved, 1. That the Medical Society of Virginia, in its annual session at Lynchburg, endorses this report and urges the state legislature and the Governor to enact the necessary laws to put it into effect at the earliest possible date, and be it

Resolved, 2. That the editor and publication committee of the Virginia Medical Monthly be instructed to use its columns in support of the Commission's report.

To the Medical Society of Virginia.

At last you have spoken: spoken in definite terms of your approval of the establishment of the Medical Department of the University of Virginia in Richmond. You have spoken after deliberate and careful study. For months upon months you have thought of and discussed this question. And recently in your state convention you adopted resolutions urging upon the legislature your opinion.

Now, yours is an expert opinion which should be heeded. While as respected citizens of this commonwealth any action taken by you, as a state organization, should receive the most careful attention of the law makers, on the matter of medical education your opinion should be determining in its effect on the legislature. You must remember, however, that the layman-legislator does not always see medical questions from your point of view. So, in addition to expressing your expert opinion as to what you think should be done in this matter, you must exert yourselves in every proper way to have your representatives in the law-making body put into effect the recommendation of the Medical Commission. This necessity will demand great activity on the part of every doctor in the state organization favoring this change. Surely, this state organization of doctors will, after deliberately taking action on this matter, do all it can to put in force its will.

To Our Law Makers.

The doctors of Virginia, at the last state convention, adopted resolutions urging you to place the Medical Department of the University of Virginia in Richmond. The resolutions supported and urged the legislature to put into execution the report of the Commission on Medical Education. This Commission was created by the last legislature for the purpose of making a survey of the needs of Virginia. The trend of opinion on the matter of medical education in this State is clear in the lamentable fact that the resources and agencies now utilized in the teaching of medicine are inefficient. It is clear to informed observers that Virginia is failing to utilize its available resources to the best advantage in this field. It is felt that the operation of two medical schools, both handicapped by adverse conditions, is poor service to our sick population. Especially so, when the transfer of a department of the established university to a larger center of population will, at once, remove this

great hindrance and be a big step toward the formation of a great medical school.

You are urged to support the Medical Commission. This Commission has thoroughly canvassed our needs in this matter. The Commission's report, if adopted and put in force, cannot fail to bring a new era to our old State in medical education. The absorption of the Medical College of Virgina and the establishment of the medical school in Richmond where the faculty of the University, under the control and direction of its Board of Trustees and its President, may conduct a modern medical school, will be an epochal step for Virginia. No longer, when this becomes a reality, will it be heard that Virginia is a "back number" in medical education. Virginia will then have made possible the utilization of the resources easily within her grasp. She will then have taken her splendidly trained teachers at her University in Charlottesville, handicapped by limited clinics, and sent them to her largest city, where adequate clinical teaching may be conducted with reasonable cost and outlay. The University can not fail to be greatly strengthened by such a move. The University, strong and full of vigor in much of its educational work in the State, will by this move become a greater factor in the upbuilding of the State.

Some have expressed a fear that this would be the beginning of a movement to take other departments away from the University at Charlottesville. This fear is not based upon well founded reasons. The modern medical student must either study and carefully examine diseases while in student-life, under the direction of teachers, or he must go out from his school to make such observations upon the public after he has received his degree. In other words the more sick people the medical student examines and studies while a student, under the guidance of teachers and hospital control, less will be errors in diagnosis and blunders in treatment in the early years of practice. Why should a medical student be graduated and be given a license to practice obstetrics, for instance, until he has personally studied and attended a large number of obstetrical cases? Have not the future mothers and babies of this State the right to demand that the young doctors shall be experienced in the practical side of this branch of medicine? In Richmond that branch can be taught by practical demonstration in a large number of cases because of the great clinical material available. What is true of obstetrics is true of the other branches.

Let's educate our young men and women in medicine in the State in a modern way. By doing what your Commission on Medical Education recommends, you will do a big thing for medical education, a big thing for your University, and a big thing for your State.

Our New President.

Dr. Edward Carrington Stanard Taliaferro, the newly elected President of the Medical Society of Virgina, was born in Gloucester County, Va., on December 17, 1874. He is the youngest son of General William Booth Taliaferro and, as such, is a scion of one of the prominent families of the old regime in Virginia.

Dr. E. C. Taliaferro.

He was brought up in Gloucester County, where he attended the public schools, and received his further academic education at William and Mary College. After that he went to the Medical College of Virginia, where he graduated as Doctor of Medicine in 1898. Af-

ter leaving school he served as interne at St. Vincent's Hospital, Norfolk, and then returned to Gloucester County where he practiced medicine two years. As the opportunities for advancement were not sufficiently great for him in the country, he went to Europe in 1902, and spent over a year studying in the clinics and laboratories of Vienna. After returning to this country he started to practice medicine in Norfolk, where he has continued to work up to the present time.

Dr. Taliferro, while doing a general practice, leans especially to the surgical side of the profession, and his work has been sufficiently good for him to have been elected a Fellow of the American College of Surgeons. His education, however, is not one-sided, as he did a good deal of laboratory work in Europe, and was City Bacteriologist in Norfolk for a number of years.

He has at the present time a large practice both from the town, and from people who come to him for surgical treatment from the surrounding country. He is a large man both in spirit and stature, standing 6 feet 5 inch. in his stockings, and having a genial disposition which so frequently goes with large men.

In 1908 he married Miss Alice Serpell, of Norfolk, and has three children.

News Notes

Pleasant Memory.

Elsewhere in this issue will be found the secretary's report of the business proceedings of the Lynchburg meeting of the Medical Society of Virginia. This would not be complete without an expression of appreciation for the splendid way in which the local doctors and their friends among the laymen looked out for the comfort and pleasure of those who attended. An unusually large number of ladies accompanied the doctors and pleasant entertainment was provided for them throughout the time of meeting.

The scientific exhibits were exceedingly interesting and the large number of commercial exhibits added greatly to the attractiveness of the occasion. The attendance was excellent, there being nearly four hundred members who registered for some or all of the sessions. It was a matter of regret that we did not receive quite the desired number of certificates to enable the members to secure reduced rates from the railroads. But for the fortunate many who travelled on passes, this might have been possible; however, we of the less favored class are "not as those without hope"—of a pass.

Next year we meet in Norfolk. Begin now to think of being there. That is another of the places whose name is synonymous with a good time.

The Seaboard Medical Association

Of Virginia and North Carolina will hold its twenty-sixth annual meeting in Norfolk, Va., December 6, 7, and 8, 1921, under the presidency of Dr. E. C. S. Taliaferro of Norfolk. Dr. Wm. L. Harris is chairman of the Norfolk Committee of Arrangements. In addition to a number of attractive entertainments, an interesting scientific program has been arranged and a good attendance is expected. On December 6, the Norfolk County Medical Society will give a smoker in its quarters; the president, Dr. E. C. S. Taliaferro will give a banquet on Wednesday night and there will be an oyster roast at Virginia Beach on Thursday midday.

The secretary, Dr. Clarence Porter Jones, Newport News, Va., will be glad to furnish any further information about this meeting.

Beer Now to be had on Doctor's Prescription.

The Bureau of Internal Revenue has issued regulations which will permit the manufacture of beer and allow it to be described by doctors. The amount which may be prescribed at one time is fixed at two and one-half gallons. However, no regulations are issued as to the frequency with which the prescriptions may be given or is it specified the amount of alcohol that the beer may contain. The regulations also permit doctors who have permits to prescribe not more than 2 quarts of wine, without stipulating how often wine may be prescribed. The use of spirituous liquors, whiskies, brandies, etc., is limited to a pint in ten days.

Each physician who has the permit to prescribe liquor should fully inform himself as to limitations by communicating with the Commissioner of Internal Revenue in his district. More than ever before this new law places upon doctors the responsibility to serve their fellowmen by giving or withholding pre-

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scriptions as they conscientiously think. The self-respecting physician will not yield to the temptation which may mean the ruin of another.

Fight Against Cancer.

Under the auspices of the Virginia committee appointed by the American Society for the Control of Cancer, mass meetings were held at places throughout tne State during Cancer Week, October 30 to November 5. In the various cities, specialists of note spoke and, if laymen are as ready to make use of the facts stated as they were to hear the speakers, much good should result from these timely warnings.

From the rural districts we have received only one report, but this shows that good work was done in at least one county of the State—Floyd. At meetings there, during Cancer Week, Drs. R. T. Akers and J. W. Thurman spoke on the "*History of Cancer*"; Drs. J. M. Harman and J. L. Harvey on its *Cause*, Drs. J. C. Rutrough and C. K. Burnett on *Surgical Treatment*, and Dr. M. L. Dalton on *Medical Treatment*.

Sex Ratio of U. S. Population.

The U. S. Bureau of Census in a recent statement shows that since the earliest census there has been a preponderance of males over females in this country. The total population of the United States in 1920 was 105,710,620—53,900,376 males and 51,810,244 females, or a ration of 104 males to 100 females. The ratios more nearly approach each other in the eastern and southeastern states and show a wider divergence in the western states.

There was a preponderance of males over females in 1920 in every state except Massachusetts, Rhode Island, New York, North and South Carolina, Georgia and Alabama, in which the ratio for males to females varied from 96.3 to 99.9 per 100 females. The District of Columbia shows a far greater excess of females, the ratio there being 87 males to 100 females.

Diphtheria Year.

Cases of diphtheria reported to health officers during the first eight months of 1921 show a decided increase over previous years. This is more especially in the North Central States, but there likewise seems an increased incidence of the disease in our own State this year.

In a recent issue of *Public Health Reports* appears a piece entitled "Diphtheria Immunization" which stresses diphtheria prevention after the use of the Schick test by the injection of diphtheria toxin-antitoxin. Active immunization of young children against diphtheria is useful in institutions and in localities where prompt diagnosis and treatment of diphtheria is not assured. The most favorable age for active immunization is stated to be from six months to six years.

This plan of immunization is being tried out in some of the larger cities and is worthy of investigation.

Former U. C. M. Men Visit Richmond.

Drs. J. B. Winfield and R. L. Osborn, of Clarksburg, W. Va., both of whom attended the former University College of Medicine, in Richmond, were visitors in this city, last month. They were taking a motor trip through Virginia, Maryland and West Virginia.

Dr. Osborn, who was recently made full time health officer of Clarksburg, spent the week in this city with the Richmond Health Officer.

Dr. R. S. Spilman,

Formerly of Norfolk, Va., has accepted the position as Post Surgeon and Professor of Biology at the Virginia Military Institute and has entered upon his duties there.

Dr. H. R. Fairfax

Was recently appointed health officer of Bristol, Va.

Dr. H. T. Hawkins,

Who has recently been located at Kenbridge, Va., has moved to Clover, Va.

Dr. Ernest Mosby

Has returned to his former home in Waynesboro, Va., after spending some time in Montgomery, Ala.

Dr. George H. Sparks,

Who has been making his home at Mitchells, Va., is now located at Brandy Station, Va.

Will You Help in the "Near East Relief"?

From those who have been engaged in relief work in the"Near East" come stories of unspeakable atrocities and suffering endured by the people of Armenia and Syria. Officials estimate that there are approximately a hundred thousand orphans in addition to a large number of adults, in the famine area for whom immediate responsibility should be assumed. These two Christian countries who stood by the allies in the World War have been rav-

aged by the Turks many times and yet have remained true to "the colors." Shall we not "keep faith" with them?

The work of the Near East Relief is nonsectrian. For every $5 you give, one child will be kept alive, well fed, well clothed and as happy as he or she can be under the circumstances, for a whole month. Contributions from residents of this State may be sent to Oliver J. Sands, chairman of Virginia Division, Near East Relief, at American National Bank, Richmond, Va.

Dr. B. Ryland Hudnall,

Formerly of Low Moor, Va., is now located in Covington, Va.

Married—

Dr. Oliver Allison Ryder, Alexandria, Va., and Miss Anne Elizabeth Potts, Portsmouth, Va., October 8.

Dr. Madison Redd Drewry and Miss Mary Anderson Starling, of Cascade, Va., October 12.

Dr. Howard Russell Masters, Richmond, and Miss Bealmere Dare Linthicum, Fredericksburg, October 26.

Dr. Oliver Curry Brunk, Richmond, and Miss Bernice Hall, Lynchburg, Va., October 25.

Dr. Irl Cephas Riggin and Miss Ruth Elizabeth Bradshaw, both of Windsor, Va., October 5. Dr. Riggin is a member of the class of '17, Johns Hopkins University Medical School, and has recently located at Windsor, Va.

Dr. William Walton Rixey, formerly of the University of Virginia, and Miss Helen Bradish, of "Locust Grange", near Charlottesville, Va., in New York City, in October. Dr. Rixey was a member of the '18 class of the Medical Department of the University of Virginia and later served an internship at Johnston-Willis Sanatorium, this city. Dr. and Mrs. Rixey will make their home in Princeton, W. Va.

The State Board of Medical Examiners of Virginia

Will hold its next meeting in Richmond, December 13-16, 1921. All applications should be complete and in the hands of the Secretary, Dr. J. W. Preston, Roanoke, Va., at least ten days prior to this time.

Dr. Preston Parks,

Parksley, Va., has left for New York to take a course of some length at the New York Postgraduate School and Hospital.

Lt. Toson O. Summers, U. S. N.,

Now located in this city, has returned from a pleasant visit to New Canaan, Conn.

Dr. M. L. Dalton

Was made president of the Parent Teachers' Association of Floyd, Va., at a meeting held in that place October 7.

Dr. and Mrs. Geo. A. Stover,

Of South Boston, Va., have returned home after a visit to Columbus, Ga., where they attended a convention.

Dr. J. C. Bodow

Has returned to his home in Hopewell, Va., after being under treatment at a Richmond hospital.

Watts Hospital,

West Durham, N. C., was a beneficiary to the amount of $200,000 under the will of the late George W. Watts, of that place.

Principal Causes of Death.

The Department of Commerce announces that the Census Bureau's annual report on mortality statistics, which will be issued shortly, shows 1,142,578 deaths as having occurred in 1920 within the death registration area of continental United States, representing a death rate of 13.1 per 1,000 population as compared with 12.9 in 1919, which was the lowest rate recorded in any year since the registration area was established in 1900.

The death registration area (exclusive of the Territory of Hawaii) in 1920 comprised 34 states, the District of Columbia and 16 registration cities in non-registration states, with a total estimated population on July 1st. of 87,486,713, or 82.2 per cent. of the estimated population of the United States. At present the only states not in the area are Alabama, Arizona, Arkansas, Georgia, Idaho, Iowa, Nevada, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, West Virginia, and Wyoming.

Organic diseases of the heart and pneumonia were the diseases contributing most largely to the mortality rate and for both there was a higher rate than in 1919. The fatalaties caused by automobile accidents and injuries show an increase from 9.4 per 100,000 in 1919 to 10.4 in 1920. A marked decrease is shown in the death rate from tuberculosis,

which was 114.2 in 1920 as compared with 125.6 in 1919. The death rate from suicide declined from 11.4 in 1919 to 10.2 in 1920. There was a decline also in the rate for typhoid fever and in that for accidental drowning.

Virginia Adopts Railway Code

Chief surgeons of seven leading railways, forming a committee on sanitation, have formulated a code which was accepted by the American railway association and has already been adopted by ten states, including Virginia. The new code is a considerable advance over any previously in force either in this State or, so far as is known, anywhere else. Provisions governing the transportation of sick persons are unusually complete, and certain types are barred from trains.

Water and ice supplies are carefully safeguarded; provisions for the cleaning and disinfecting of cars are ample; the code assures proper ventilation and the care of toilets or lavatories; dining cars will have to be screened and employees of dining cars will have to be careful about personal cleanliness; refrigerators, tableware, food containers, kitchen utensils have to be kept absolutely clean—in fact, it would seem that nothing has been overlooked in the effort to assure absolute sanitation.

Equally stringent are the rules governing the building, maintenance and equipment of railway stations, particularly those that have restaurants. Even construction camps come in for their share of attention, and when camps are abandoned all rubbish must be destroyed.

Copies of the code may be obtained from the State Board of Health, 1110 Capitol Street, Richmond.

Dr. Henry G. Turner,

Of Raleigh, N. C., has moved to Petersburg, Va., to make his home. He is a graduate of the University of Pennsylvania, Medical School, in the class of '06, and served as captain in the medical corps of the army in the World War.

Dr. William J. Mayo,

Rochester, Minn., who was one of the invited guests at the Lynchburg meeting of the Medical Society of Virginia, after a sightseeing trip in the country near Lynchburg, stopped over in Richmond and held a clinic, before returning to his home.

Dr. J. N. Barney,

Fredericksburg, Va., was appointed a member of the local committee to arrange for Armistice day celebration in that place.

Dr. and Mrs. A. W. Rusimiselle,

Of Waterford, Va., in the early fall enjoyed an extended visit to friends in the Valley of Virginia.

Dr. R. W. Selby,

Formerly of Burgess Store, Va., announces his removal to Raccoon Ford, Va.

Dr. Junius F. Lynch,

Of Norfolk, Virginia department commander of the American Legion, was one of the speakers at Windsor, Va., on Armistice day, at the celebration given under the auspices of the legion post of that community.

Medical Men Organize.

Physician and surgeon members of the University Club of Washington, D. C., recently organized a society which will hold luncheons and have short programs at stated intervals. Dr. Noble P. Barnes was elected president, Dr. George Tully Vaughan, vice-president, and Dr. Everett M. Ellison, secretary-treasurer.

New Hospital for Children.

As a memorial to James Whitcomb Riley, a children's hospital is to be built in Indianapolis on a site which has been contributed by citizens of that place. Funds for building the hospital were collected by the school children of Indiana during October and legislature will make an annual appropriation for expenses.

Doctors Officers in Military Order.

At the meeting of the Richmond Chapter, Military Order of the World War, held early in October, Col. J. Fulmer Bright was elected commander, Maj. G. A. Ezekiel, adjutant, and Col. Garnett Nelson, historian. All of these are practising physicians in Richmond.

Dr. V. W. Quillen,

Of Nickelsville, Va., who has been taking a post-graduate course at the Lying-in Hospital, New York City, will return to his home the first of December.

Dr. F. J. Wright

Has returned to his home in Petersburg, Va., after a post-graduate course at the New York Post-Graduate School and Hospital.

Dr. O. L. Watkins,

Of Rustburg, Va., recently enjoyed a fishing trip with some friends at Cape Charles, Va., having taken the trip by automobile. On their

return they stopped for a visit at Old Point and Richmond.

Dr. Alvah Ramsey,

Of Norfolk, Va., was a recent visitor at the home of friends in Burkeville, Va.

Dr. and Mrs. Percy Harris,

Scottsville, Va., recently visited friends in Amherst, Va.

Dr. John A. Hawkins,

Of Danville, Va., has recovered from the effects of a near-serious accident, when his coupe, which started running away down an incline, turned over on him while he was trying to control it from the running board. He had just left the car to visit a patient when his attention was called to the fact that his car was moving. Jumping on the running board he attempted to pull on the hand brake, but the car in the meantime went into a gulley and turned over. Dr. Hawkins suffered severe abrasions about face and head but was otherwise unhurt.

Dr. and Mrs. E. B. Claybrook,

Of Cumberland, Md., have recently been visiting relatives in this city. Dr. Claybrook has many friends here, having studied medicine at the former University College of Medicine.

Dr. William F. Drewry

Has been appointed chairman of the building committee of the new Petersburg, Va., Country Club.

Dr. F. F. Davis,

Of Sassafras, Va., has been appointed by Governor Davis a member of the board of the Virginia Home and Industrial School for Girls, in Chesterfield County, Va.

Dr. Hunter H. McGuire,

Winchester, Va., has been named one of the directors of the Rotary Club which was organized in that place the middle of October.

T. B. Christmas Seals.

This year marks the fourteenth annual Christmas Seal Sale and each one is asked to help support this sale. Work done by the National Tuberculosis Association has resulted in a saving of over 75,000 lives a year, as compared with the death rate of fifteen years ago, when work was first commenced by the Association. The death rate of nearly 200 to every 100,000 population, when the Christmas Seal sale was inaugurated, has been reduced to approximately 125 per 100,000.

More than fifty counties of this State have already been organized for the sale of these Seals. A goal of 5 cents per capita of the population of Virginia has been set, and the attainment of this goal would mean $115,318.05 to fight tuberculosis in Virginia. Accept this opportunity given you to help those more unfortunate than yourself.

The Radiological Society of North America

Will hold its annual meeting in Chicago, December 7-9, under the presidency of Dr. Alden Williams, of Grand Rapids, Mich. Dr. M. J. Sandborn, of Appleton, Wis., is secretary.

Dr. M. Benmosche,

A member of the Medical Society of Virginia, who has for several years made his home in Detroit, Mich., has now located in New York City, with offices at 714 West 179th Street.

Dr. Newman Receives Promotion.

Word has been received here that Dr. Samuel Newman, who was connected with the Danville, Va., Health Department, before being attached to the medical commission of the European joint distribution committee in Poland, has been promoted to the post of administrative officer.

Abbott Laboratories Have New Buildings.

To meet the growing demands of their business, the Abbott Laboratories, of Chicago, have just erected a substantial group of eight concrete buildings in North Chicago, and are now enlarging their research department. Their executive offices will be maintained at the former offices, 4739-4753 Ravenswood Avenue, Chicago.

Another New Hospital.

It is stated that the directors of the Virginia Baptist Hospital, which has been chartered to build a hospital in Lynchburg, Va., from funds to come from the $75,000,000 campaign, put on by the Southern Baptists two years ago, hope to have funds sufficient to start upon the erection of the first unit of the hospital early in the coming year. The first unit is proposed to cost $150,000.

Dr. and Mrs. Meade S. Brent

Have returned to their home in Petersburg, Va., after a trip to New York and to relatives in Heathsville, Va. Dr. A. M. Brent, of

Heathsville, accompanied them on their trip north.

New N. C. Hospital.

Drs. James P. Matheson, Clarence Peeler, and Henry Lee Sloan, of Charlotte, N. C., have purchased a site in that city, on which they will have erected a modern hospital for the exclusive treatment of diseases of the eye, ear, nose and throat.

Deaths from Automobile Accidents in 1920.

According to the report issued by the Department of Commerce, through the Bureau of Census, in 1920 there were 9,103 deaths resulting from accidents caused by automobiles and other motor vehicles, excluding motorcycles, in the registration area of the United States. Although the rate per 100,000 people has increased steadily since 1915, the number of automobiles has increased so greatly that the rate per 1,000 automobiles was lower in 1920 than in 1915.

In the 1920 report, it is interesting to note that Virginia has next to the lowest death rate from automobile accidents in states in the registration area reporting for the whole year, and Richmond has next to the lowest death rate from these accidents in cities of over 100,000. Kentucky and Indianapolis took the palm from Virginia and Richmond, respectively.

Surgical Instruments For Sale.

Such instruments as are used by a country practitioner to be sold at bargain price. Apply to "V", care this journal.

A Good Location For A Physician.

House and lot in small town, for rent or sale. Good roads and prosperous neighborhood. For particulars, apply to "V", care this journal.

Obituary Record.

Dr. Henry Hyman Levy.

After an illness of about two years, Dr. Levy, who was for many years one of the most prominent and popular practitioners of this city, died October 19. Had he lived until December 27, he would have been seventy-one years of age. Upon completion of his academic education, he studied medicine at the Medical College of Virginia, this city, from which he graduated in 1871. After two years' internship at Blockley Hospital, Philadelphia, he returned to this city and took up the practice of his profession and had continued actively at his work until his illness.

Dr. Levy was for a long number of years connected with the faculty of the Medical College of Virginia, later being made emeritus professor of the practice of medicine; he was an ex-president of the Richmond Academy of Medicine and Surgery; and an honorary member of the Medical Society of Virginia. His wife, two children and a sister survive him.

Resolutions on Death of Dr. Edward McGuire.

The Richmond Academy of Medicine and Surgery has heard with deep regret of the death of Dr. Edward McGuire. Inheriting the traditions of a long line of medical ancestors, and gifted by birth with marked personal qualifications for his chosen work, he has left behind him a career of ability, conscientiousness, usefulness and honor. As a practitioner, he kept abreast of the advances in his profession; he was endowed in a high degree with traits which make the practical and successful family physician; and in his wide ministrations he evinced those qualities of mind and heart which endeared him to his patients as a wise counselor and a self-sacrificing and faithful friend. He has ennobled his profession and left us an example to follow. Therefore, be it resolved:

First. That we desire to express a keen sense of our loss in the death of Dr. McGuire.

Second. That we extend to the bereaved family our sympathy.

Third. That a copy of these resolutions be sent the family, entered upon the minutes and published in the Virginia Medical Monthly.

(Signed)
WM. S. GORDON,
VIRGINIUS HARRISON,
JAS. H. SMITH.

Dr. Milton Howard Fussell,

Of Philadelphia, prominent as physician and author and recognized as a man of unusual ability by the profession, died from acute dilatation of the heart, October 15, on a train en route to Williamsport, Pa. He was 66 years of age and a graduate from the Medical Department of the University of Pennsylvania in 1884. Dr. Fussell had served in the House of Delegates of the American Medical Association; he was also second-vice-president of the U. S. Pharmacopeial Convention and a member of its committee on revision.

Dr. John Augustus Sanders,

Of Herndon, W. Va., was instantly killed recently, when an automobile in which he was riding skidded down an embankment at Huntington. He was 32 years of age and a graduate of the Medical College of Virginia, Richmond, in 1917.